

MONOGRAPH OF THE GENUS *RHYNCHOTROCHUS* (PAPUININAE: CAMAENIDAE)

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Pls. 15-22, text figs. 1-6.

This study is the third in a series covering the species in the subfamily Papuininae†. Species in the genus *Rhynchotrochus* are confined mainly to New Guinea and its satellite islands. Two species reach the Bismarck Archipelago and one occurs in northern Queensland.

Under *Specimens examined* we are following the naming of the three parts of New Guinea as used in the 1963 edition of the Atlas of the World published by the National Geographic Society, Washington, D.C.: West New Guinea (formerly Netherlands New Guinea), Northeast New Guinea (formerly Territory of New Guinea and German New Guinea), and Papua (formerly British New Guinea).

ACKNOWLEDGEMENTS

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ABBREVIATIONS

- AI — Auckland Institute and Museum, New Zealand.
AM — Australian Museum, Sydney.
AMNH — American Museum of Natural History, New York.
BM — Zoologisches Museum der Humboldt-Universität, Berlin, Germany.
BMNH — British Museum (Natural History), London.
BMS — Basel Museum, Basel, Switzerland.
BPBM — B. P. Bishop Museum, Honolulu, Hawaii.
CM — Chicago Natural History Museum, Chicago, Illinois.
CMP — Carnegie Museum, Pittsburgh, Pennsylvania.
DM — Dominion Museum, Wellington, New Zealand.
GM — Museo Civico di Storia Naturale di Genoa, Italy.
MCZ — Museum of Comparative Zoology, Cambridge, Massachusetts.
MM — Manchester Museum, Manchester, England.
NMV — National Museum of Victoria, Melbourne, Australia.
SMF — Senckenberg Museum, Frankfurt-am-Main, Germany.
UM — Museum of Zoology, University of Michigan, Ann Arbor.
UMK — Universitetets Museum, Kobenhavn, Denmark.
USNM — United States National Museum, Washington, D.C.
ZM — Zoologisch Museum, Amsterdam, The Netherlands.

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Genus *RHYNCHOTROCHUS* Möllendorff.

Rhynchotrochus Möllendorff, 1895, *Proc. Malac. Soc. Lond.*, 1:237 (type species, *Papuina tayloriana* Adams and Reeve, original designation).

Kathadena Iredale, 1941, *Aust. Zool.* 10:82 (type species, *Helix gurgustii* Cox, original designation).

Violenga Iredale, 1941, *Aust. Zool.*, 10:81 (type species, *Helix rollsiana* Smith, original designation).

Henga Iredale, 1941, *Aust. Zool.*, 10:81 (type species, *Geotrochus trobriandensis* Hedley, original designation).

Shell depressed, trochoid and usually keeled. Aperture depressed downward with the outer lip having a papuinoid notch and the sub-peripheral area drawn out into a beak or rostrum. Shells uniformly coloured, spirally banded or mottled.

The genus *Rhynchotrochus* is the most complicated among the elements in the Papuininae. It probably occupies most, if not all, of mainland New Guinea and many of the closely associated islands. Somewhat divergent groups in the Bismarcks, Louisiades, D'Entrecasteaux, and Trobriand Islands and Queensland are well differentiated and not at all difficult to separate as to species. Some species in New Guinea appear to merge into one another in colour pattern, shape and size.

Our present understanding of the species and forms composing this genus are certainly no more than tentative and will be subject to considerable modification when more material is at hand for study. The most serious handicaps at present are the lack of localized specimens, alcoholic material, and the complete inadequacy of many of the original descriptions.

ANATOMICAL NOTES

The jaws of the species dissected show a morphological series from those which are smooth or have faint to rather pronounced transverse lines in the mid section to those which are strongly ribbed. They do not vary, however, in shape or extent of ribbing within the species so far as could be determined from the limited material available for study.

The radulae also do not vary within the species and the greatest differences between the species are exhibited in the marginal teeth. The teeth are arranged in straight rows; the number per row ranging from 81 to 133.

The reproductive system is remarkably similar in the species for which the soft parts were available. In most specimens dissected the ovotestis was not sufficiently well preserved to allow detailed work. It appeared to be similar in all species and not distinctly lobed. The spermatheca has a long stalk with a slight to pronounced swelling at the base. In its normal position it is closely bound to and somewhat entwined with the prostate and uterus, the head reaching about one-half to two-thirds the distance to the albumin gland. The penial apparatus has a long epiphallus and small, stout flagellum. The basal half of the penial sheath is slightly to moderately muscular, the distal half thin and non-muscular. The penis papilla is extremely contractile and may appear very different in shape, depending upon the extent of contraction. The vas deferens opens into the epiphallus at the base of the flagellum, usually to the side and just subterminally. Throughout its length the vas deferens lies close against the oviduct, the vagina and penis on the back or ventral side. It is relatively short since the long epiphallus bends back upon the penis, reaching nearly to the atrium.

The entire penial complex varies greatly with the age of the specimens

and the conditions under which they were preserved. In addition, the various parts may contract independently and to varying extents, producing marked difference in appearance. Some of these variations are illustrated for *R. taylorianus*, the species for which we had the largest series for study. It would appear on the basis of this material that *taylorianus* and *kubaryi* are closely related, and it is possible that where their ranges overlap they may interbreed.

In the semi-diagrammatic illustrations the various organs have been separated and oriented in the same general way for all specimens in order that comparisons may be easily made.

To date the anatomy is known for only four of the twenty species included in *Rhynchotrochus* and, with the exception of *R. taylorianus*, only one or two preserved specimens were available. Consequently normal variation in the soft parts could not be ascertained. It is hoped that additional material will become available and that when the systematic studies of the subfamily Papuininae have been completed a comparative survey of the various groups can be made.

Rhynchotrochus (Rhynchotrochus) taylorianus (Adams and Reeve).

Plate 15, fig. 1-2; 5-15. Plate 16, fig. 4-6; 16. Plate 20, fig. 1-7.

Text figs. 1-3.

Helix tayloriana Adams and Reeve, 1850, *Zoology of the Voyage of H.M.S. Samarang*, 2, Mollusca, p. 59, pl. 15, fig. 2a-b (locality unknown [the area about Port Moresby, Papua]). [Holotype, BMNH no. 74.12.11.214.]

Helix rhynchonella Tapparone-Canefri, 1886, *Ann. Mus. Stor. Nat. Genova*, 24:134 (Ansus, Island of Giobi [Japan Id., West New Guinea]). [Holotype, GM.]

Papuina planogyra Möllendorff, 1895, *Proc. Malac. Soc. Lond.*, 1:236, pl. 15, fig. 5 (Constantinshafen, German New Guinea). [Lectotype, SMF no. 8641.]

Papuina tayloriana, form *genulabris* Möllendorff, 1895, *Proc. Malac. Soc. Lond.*, 1:236 (Constantinshafen, German New Guinea). [Lectotype, SMF no. 8656.]

Rhynchotrochus monticola Iredale, 1941, *Aust. Zool.*, 10:77, pl. 4, fig. 2 (Mount Astrolabe, Papua). [Holotype, AM no. C.62656 and topotypes BMNH no. 80.3.30.4; MCZ no. 191972.]

Rhynchotrochus sinucola Iredale, 1941, *Aust. Zool.*, 10:77, pl. 4, fig. 4 (Cloudy Bay, south coast of Papua). [Holotype, AM no. C.19510.]

Rhynchotrochus praefectus Iredale, 1941, *Aust. Zool.*, 10:77, pl. 4, fig. 3 (Collingwood Bay, N.E. Papua). [Holotype, AM no. C.18887.]

Papuina tayloriana major 'Strubell' Schepman, 1918, *Zool. Meded. Rijksmus. Natuur. Hist., Leiden*, 4:8 (near S. coast of Humboldt Bay and Hollandia, New Guinea).

Description: Shell subdepressed, trochiform, imperforate, nearly smooth, glossy and reaching 33.5 mm. (1½ inches) in greatest diameter. Ground colour variable, generally yellowish with pinkish purple on the base and on the upper whorls. Additional colour of a marbled purple or brown in the form of flecks in spiral bands of colour both above and below the periphery. Outer lip a dark purplish black. Interior of shell white to dark purple. Many specimens do not have the purple-brown colour pattern, but have pinkish or white early whorls and a yellow body whorl. Whorls 5, very acutely keeled and somewhat flattened. Spire

subdepressed, slightly obtuse and produced at an angle of about 92° . Aperture subelliptical and rostrate, descending very slightly with a well defined, shallow notch and cast at an angle of about 40° from the base. Outer lip reflected, rostrate and purplish black in colour; parietal wall thinly glazed. Columella very short and slightly flattened. Suture slightly indented. Sculpture consisting of numerous, irregular, incised lines, oblique above and spiral below the whorl periphery. Protoconch smooth, about $1\frac{1}{2}$ whorls and coloured either light or dark.

Height	Width	
23 mm.	33 mm.	Milne Bay, Eastern Division, Papua.
18 mm.	32.5 mm.	Orokolo, Gulf Division, Papua.
15 mm.	32.5 mm.	Hollandia, West New Guinea.
15 mm.	31 mm.	" " " "
14 mm.	25 mm.	Ali Id., 18 mi. E. of Aitape, Northeast New Guinea.
14.5 mm.	27 mm.	Jamna Id., West New Guinea.

Remarks: This is an extremely variable species, both in size and colour. A given colony is usually of a rather uniform size, but the colour pattern may vary from nearly unicolourous specimens to those which are strongly banded and flecked.

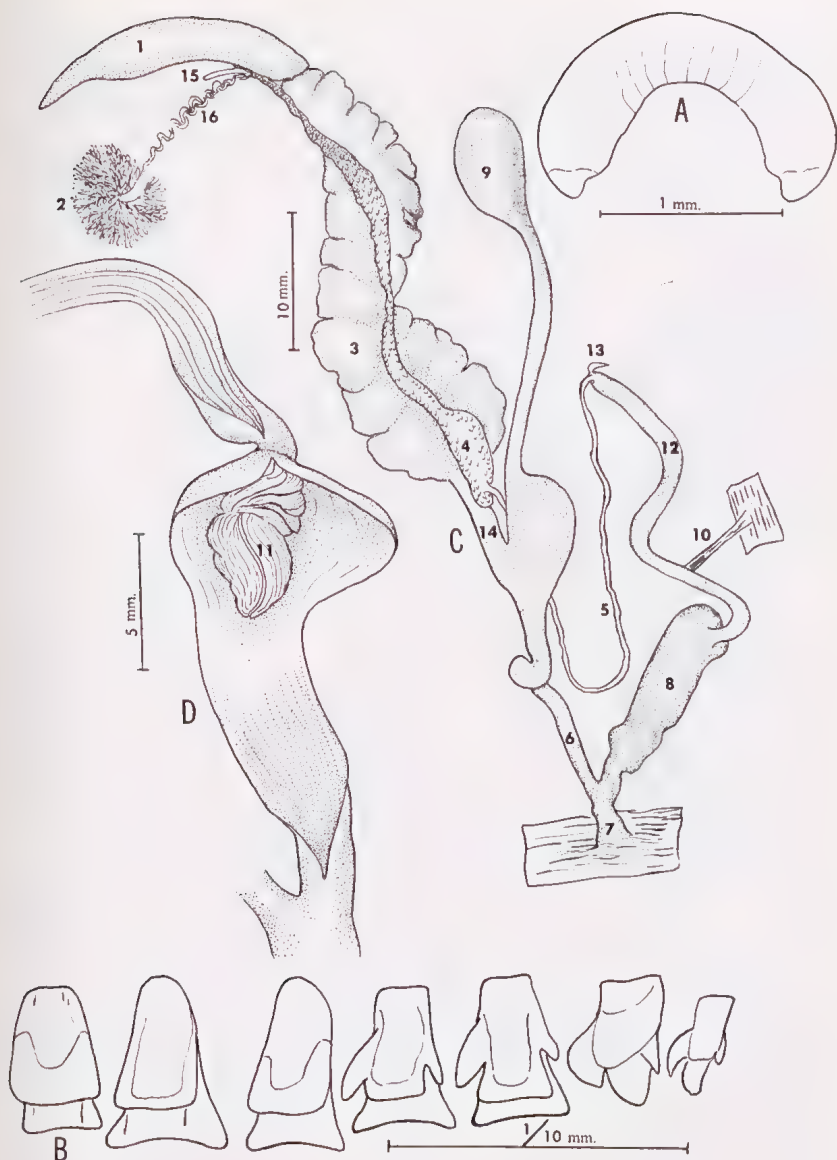
Isolated specimens may appear quite different, but when a large series is studied it is impossible to separate groups even to subspecies.

This species is closely related to *R. kubaryi* (v. Möllendorff) which it resembles in many of its colour patterns; however, *kubaryi* is rounded rather than strongly keeled at the periphery.

Head and dorsal part of the body usually yellowish, the back of the neck with two gray streaks running posteriorly from the base of the black tentacles, the tips of which are yellow. Foot gray; mantle light tan, the edge of the mantle dark brown to black. Sole of foot in preserved specimens smooth to finely knobby with as many as twenty fine knobs in a straight row across the foot. This appears to be a variable character because in a single lot all with similar appearing shells, some specimens may have a smooth foot, while in others only the anterior portion is knobby, and in a few the entire foot, except the posterior tip, is knobby. Jaws smooth. Text figs. 1-3 illustrate the variation which can be found in the reproductive system of this species, particularly in the penial complex.

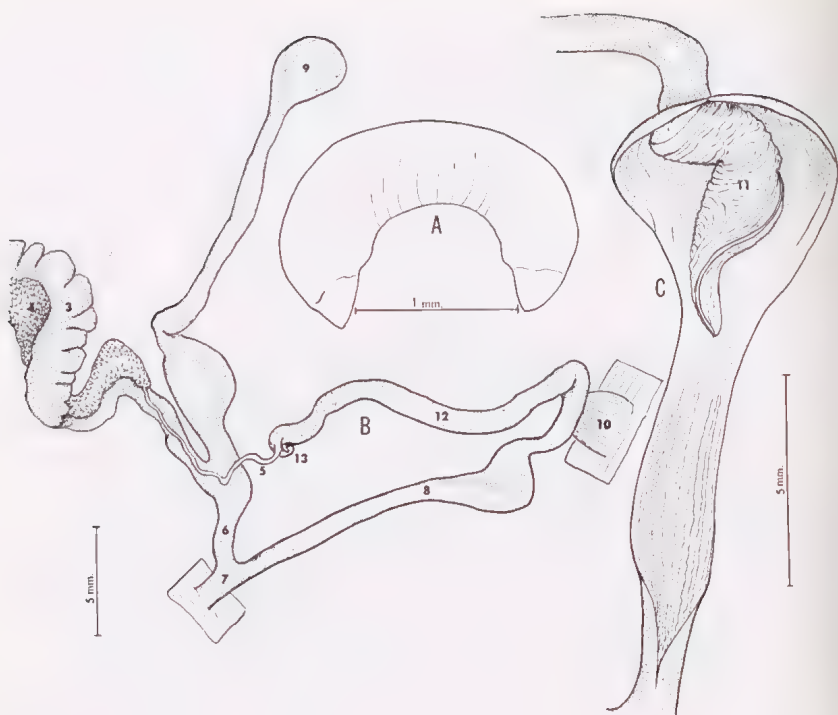
The penial retractor muscle of the specimen illustrated in text fig. 1 was relaxed, the penis papilla small and contracted, and the lower muscular portion of the penial sheath was relaxed so that the pilasters were scarcely evident. The penial retractor muscle of the specimen shown in text fig. 2 was contracted, the penis papilla moderately extended, and the pilasters of the basal portion of the sheath, as a result of the contraction, were quite prominent. The penis papilla of the specimen illustrated in text fig. 3 was somewhat extended and pushed the pilasters into transverse folds, giving the inner surface of the sheath a strikingly different appearance.

Specimens examined: WEST NEW GUINEA: Soweik, Soepiori Id., Schouten Is. (ANSP); near Napaan, southern Geelvink Bay; Village of Mantemboe, near Seroei, Japen Id. (both AM); Samberbaba, Japen Id. (ANSP); upper Namoena River (tributary of Mamberamo), near Pionierbivak; Kama River (tributary of Koekoendoeri); upper Koekoendoeri



Text figure 1.

Rhynchotrochus taylorianus (Adams and Reeve). Sangara Plantation near foot of Mount Lamington, Papua. A. Jaw with indistinct transverse lines. B. Radular teeth. C. Reproductive system. D. Dissected penis. Labelling for the reproductive system:—1, albumen gland. 2, ovotestis. 3, uterus. 4, prostate gland. 5, vas deferens. 6, vagina. 7, atrium. 8, penis. 9, spermatheca. 10, penial retractor. 11, penis papilla. 12, epiphallus. 13, flagellum. 14, oviduct. 15, talon. 16, seminal vesicle. 17, ovotestis duct.

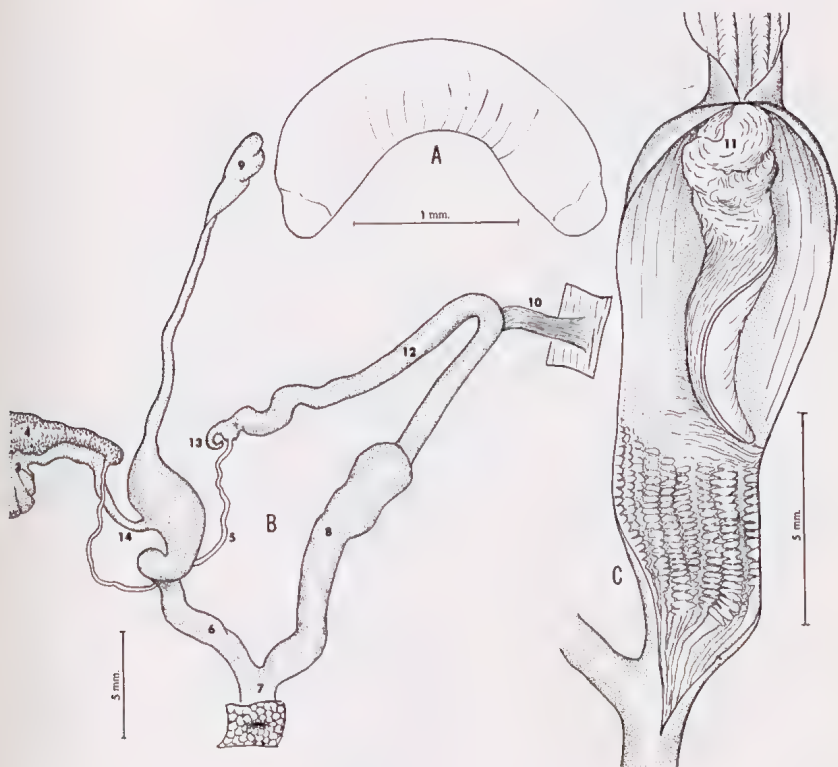


Text figure 2.

Rhynchotrochus taylorianus (Adams and Reeve). Gwemgwumgwak Village, near Wantoat, Northeast New Guinea. A. Jaw. B. Basal portion of reproductive system. C. Dissected penis. (See text figure 1 for labelling of reproductive system.)

(tributary of Mamberamo), inland from Sarmi; near Sarmi (all AM); Insoemaar Island, Wakde Ids. (MCZ); Jamna Island (MCZ; USNM; UM; BMNH); Tanah Merah; Oinaké; Tami (all ZM); Hollandia (CM); Moso River, Humboldt Bay (ZM); Hills east of Hollandia at 1000 to 1500 ft. (AM); Sekanto River (ZM). NORTHEAST NEW GUINEA: Aitape (MCZ); Ali Island, about 18 miles E. of Aitape (CM); Government Station, Aiome; Banup Plantation, 30 miles N. of Madang; Mikaref; Abegani; between Pir and Gorak; between Akokom and Abegani; near Dinami; near Mikera; between Akokomoud and Giri; between Aringin and Pir, all Madang District (all AI); near Sek; Gwemgwumgwak, near Wantoat; Surawaged Mts., about 60 miles N.W. of Lae at 3500 feet; Botanic Gardens, Lae (all AM). PAPUA: Between the Kumusi and Mambare Rivers, Ioma subdistrict; Higatura, Mt. Lamington, Sangara District (both NMV); Sambo Village, Mt. Lamington (AM), Mamoo Estate, Pependetta (AM); Saputa, Pependetta, about 12 miles S.W. of Buna; 20 miles S.W. of Buna (both NMV), all Northern Division; Cap Sud-est, 10 miles S.E. of Buna, Northeastern Division (Stanford Univ.); Eroro, near Oro Bay; near Eroro Mission, about 20 miles S.S.E. of Buna (both AM); Iototo Creek, near Mt. Britannia, Cape Nelson (MCZ); Collingwood Bay (AM), all Northeastern Division; Milne Bay (Stanford Univ.; MCZ; UM;

USNM; BMNH); Cloudy Bay, both Eastern Division; Aipiana (AM); Mekeo People (AM), ($8^{\circ} 34' S.$; $146^{\circ} 33' W.$); inland from Yule Island (M. Kleckham); Yule Id. (AM; NMV; MCZ; ANSP); Mt. Astrolabe (AM; MCZ), all Central Division; Iokea (MCZ); Cape Cupola; Kerema (NMV); Kerema (USNM); Vailala, near Orokolo (R. Jackson); Orokolo (AM; Stanford Univ.), all Gulf Division; Middletown, Kikori River, near Kikori, Delta Division (AM).



Text figure 3.

Rhynchotrochus taylorianus (Adams and Reeve). Mantemboe Village, near Seroei, Japen Id., West New Guinea. A. Jaw. B. Basal portion of reproductive system. C. Dissected penis. (See text figure 1 for labelling of reproductive system.)

Rhynchotrochus (*Rhynchotrochus*) *kubaryi* (Möllendorff).

Plate 19, fig. 1-3; Plate 21, fig. 5-7; Text fig. 4.

Papuina kubaryi Möllendorff, 1895, *Proc. Malac. Soc. Lond.*, 1:236, pl. 15, fig. 4 (Constantinhafen [Astrolabe Bay], German New Guinea [Northeast New Guinea]). [Lectotype, SMF no. 8635a, Zilch, 1960, p. 198, pl. 16, fig. 6.]

Papuina kubaryi albina Möllendorff, 1895, *Proc. Malac. Soc. Lond.*, 1:236

(Constantinhafen [Astrolabe Bay], German New Guinea). [Lectotype, SMF, no. 8637, Zilch, 1960, p. 198, pl. 16, fig. 7.]

Papuina kubaryi albida Ancey, 1895, *Proc. Linn. Soc. New South Wales*, (2), 10:377 (German (?) New Guinea).

Papuina kubaryi albolabiata Schepman, 1918, *Zool. Meded. Rijksmus. Natuur. Hist., Leiden*, 4:9 (mouth of the Sermorvai River, Dutch New Guinea). [Holotype, ZM.]

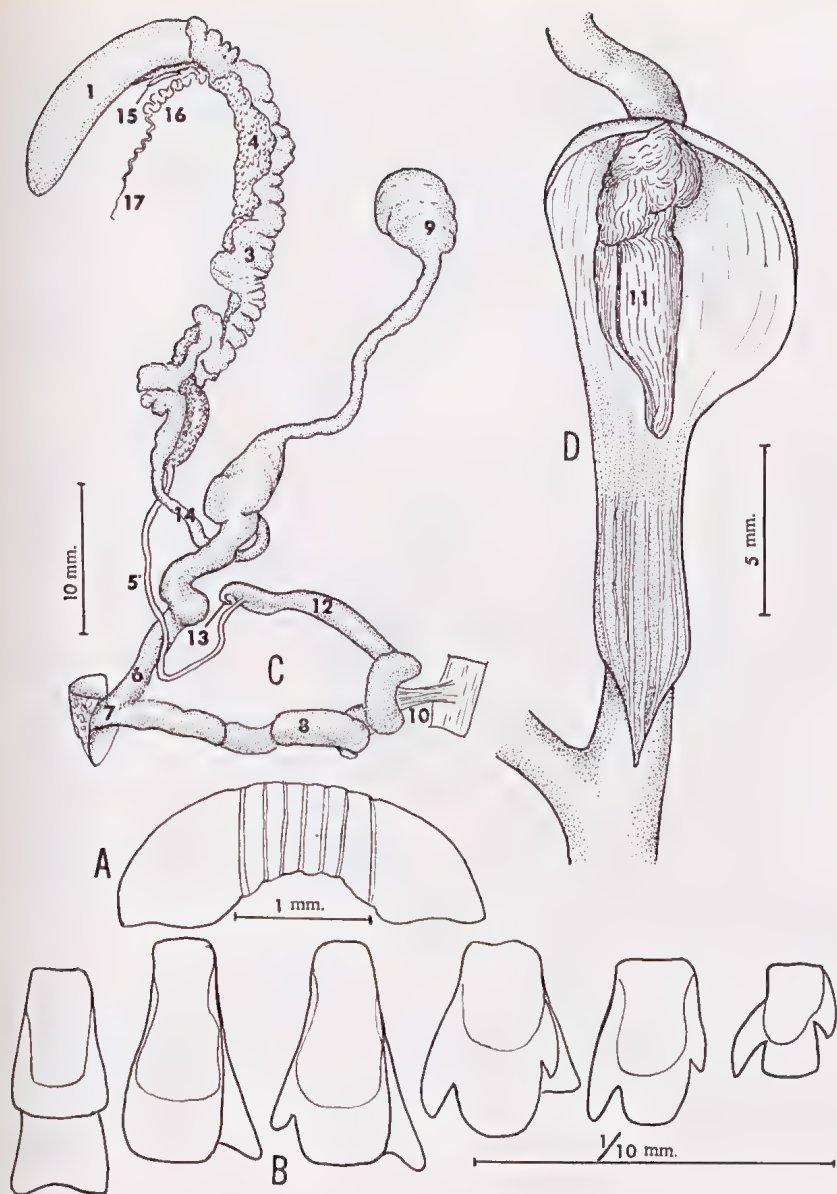
Description: Shell subglobose, imperforate, nearly smooth, glossy, and reaching 25 mm. in greatest diameter. Ground colour pale ivory to yellow with some purple in the parietal area. There are two rather broad bands of colour above and below the periphery of the whorl. They are mottled, are a dark purplish brown colour, and become stronger near the aperture. When viewed from within the aperture the dark coloured areas are translucent, the light areas opaque. The upper band is generally wider and may break into two or three secondary bands. The lip is generally a dark purplish brown. Some specimens lack the supraparipheral band, having only a narrow dark band below the periphery and a dark margin to the lip. The remainder of the shell is a pale ivory and becomes an intense yellow-orange near the lip. Other specimens lack all bands, having only the dark embryonic tip and the dark lip. Albinistic forms are common and have given rise to the several names that appear in the synonymy above. Spire subdepressed, obtuse and produced at an angle of about 100° . Aperture auricular in outline, descending slightly, with a well defined papuinoid notch and cast at an angle of about 25° from the base. Outer lip reflected and generally a dark chocolate-brown though occasional specimens have a white lip. Parietal area purplish. Suture slightly indented. Sculpture consisting of very fine oblique growth lines crossed by short and irregular interrupted threads. Protoconch not well differentiated.

Height	Width	
18 mm.	25 mm.	Constantinhafen, Astrolabe Bay, North-east New Guinea.
15.5 mm.	23 mm.	Mamberamo River, West New Guinea.
15.5 mm.	24 mm.	Near Mosso River, West New Guinea.
20 mm.	31 mm.	Tawarin, near Hollandia, West New Guinea.

Remarks: All of the synonyms given above were based on albino or partially albino specimens. These cannot be separated from the typical form as they occur in the same colony. In addition, these albinistic forms show clear and opaque areas when seen with transmitted light, the translucent areas are those that are pigmented in the coloured forms.

Specimens of this species from the vicinity of Hollandia, West New Guinea, are somewhat larger in size but the colour pattern is identical.

Undersurface of foot yellowish; the upper surface as well as the head, tentacles and mantle gray to brownish black with yellow reticulations. Anterior portion of the sole of the foot distinctly and coarsely knobby in preserved specimens; there being about 5 knobs in each slightly diagonal row across the foot. Posterior portion of foot smooth. Five specimens were dissected and the reproductive systems of these showed variations similar to that illustrated for *R. taylorianus*. The jaw of *kubaryi*, while not grooved as in *macgillivrayi*, is more distinctly



Text figure 4.

Rhynchotrochus kubaryi (Möllendorff). New Pionierbivak, West New Guinea. A. Jaw with distinct transverse lines but lacking raised ribs. B. Radular teeth. C. Reproductive system (lacking ovotestis). D. Dissected penis. (See text figure 1 for labelling of reproductive system.)

marked than *taylorianus*. The radula is nearly identical to that of *taylorianus*.

Specimens examined: WEST NEW GUINEA: Pionierbivak, Mamberamo River; near Mosso River; Koeama River, E. of New Pionierbivak (all AM; MCZ; ZM); Upper Koekoendoeri River, inland from Sarmi (AM); Upper Namoena River, tributary of the Mamberamo River, near Pionierbivak (AM). NORTHEAST NEW GUINEA: Subra, at 2000 feet, near Saidor; Saidor (both AM); Constantinhafen, Astrolabe Bay (MCZ; MM; UM; USNM).

Rhynchotrochus (Rhynchotrochus) strabo (Brazier).

Plate 15, fig. 16-18. Plate 16, fig. 1-3.

Plate 19, fig. 6-11. Plate 21, fig. 1-2.

Helix (Geotrochus) strabo Brazier, 1876, *Proc. Linn. Soc. New South Wales*, 1:106 (Katau River [Binaturi River, near Daru, Western Division, Papua]). [Lectotype, here selected, AM no. C.62381; paratypes, Macleay Mus., Sydney, no. A57.]

Helix katauensis Tapparone-Canefri, 1883, *Ann. Mus. Stor. Nat. Genova*, 19:126, pl. 3, fig. 1-3; pl. 6, fig. 3 (Katau [Binaturi River, 10 miles W. of Daru, Western Division, Papua]). [Holotype, Genova Mus.]

Helix (Papuina) roseolabiata Smith, 1887, *Ann. Mag. Nat. Hist.*, (5), 19:421, pl. 15, fig. 2 (Ferguson Id., D'Entrecasteaux Group [Papua]), non *Papuina roseolabiata* Schepman, 1918.

Rhynchotrochus extraneus Iredale, 1941, *Aust. Zool.*, 10:98, pl. 4, fig. 6 (Kerema, Gulf of Papua). [Holotype, AM no. C.62657.]

Rhynchotrochus vallicola Iredale, 1941, *Aust. Zool.*, 10:78, pl. 4, fig. 5 (Purari River, Papua). [Holotype, AM no. C.30643.]

Description: Shell subdepressed, trochiform, imperforate, nearly smooth, glossy, and reaching 31 mm. (about 1¼ inches) in greatest diameter. Ground colour a creamy white with the peristome pink. There are three basic colour patterns: those shells which are almost entirely creamy white with a pink lip, others that are a creamy white and have a peripheral band of reddish brown, and the third group which has a white peripheral band with marbled reddish brown over most of the surface. In both the second and the third groups, the nuclear whorls may be white or blackish brown. In the first group they are always white. Whorls 4½, acutely keeled, somewhat flattened above and convex below the periphery. Spire subdepressed, slightly obtuse and produced at an angle of about 100°. Aperture subelliptical, rostrate, descending very slightly, with a very well defined though shallow notch, and cast at an angle of 32° from the base. Outer lip reflected, rostrate, and pinkish in colour. Parietal wall thinly glazed. Columella very short. Suture slightly indented. Sculpture consisting of numerous irregular oblique incised lines. Protoconch smooth.

Height	Width	
15.5 mm.	30.5 mm.	Maclatchie Point, Gulf Division, Papua.
18.5 mm.	29 mm.	Albert Mountains, " " "
14.5 mm.	28.5 mm.	Purari River, " " "
21 mm.	35 mm.	Ioma subdistrict, between the Mambare and Kumusi Rivers, Northern Division, Papua.

Remarks: This is another complex of colour forms, all of which have received names, but again similar to other species in this genus, there is considerable variation in colour pattern within the species.

So far this species is limited to Papua and extends from the Western Division east to the Gulf Division.

The locality, Ferguson Island, D'Entrecasteaux Group, given by E. A. Smith, is certainly in error.

.. *Specimens examined:* PAPUA: Katau or Binaturi River, near Daru (ANSP); head of Oriomo River and head of Fly River (both Mrs. M. Kleckham), all Western Division; Kerema District, Albert Mts. (AM); Maclatchie Point (ANSP; BMNH); Purari River (AM), all Gulf Division; Popendetta, near Buna; Divinikoari, about 30 miles S.W. of Buna; Ioma subdistrict, between the Mambare and Kumusi Rivers (all NMV), all Northern Division.

Rhynchotrochus strabo dampierensis (Fulton).

Plate 16, fig. 17. Plate 21, fig. 3.

Papuina tayloriana dampierensis Fulton, 1920, *Proc. Malac. Soc. Lond.*, 14:2 (Dampier Id. [Karkar Id.], New Guinea). [Holotype, BMNH no. 1922.2.24.35; syntype, ANSP no. 127765.]

Description: Shell subdepressed, trochiform, keeled, imperforate, nearly smooth, glossy and reaching 24 mm. in greatest diameter. Ground colour a light yellowish brown, becoming a little more intense near the aperture. Outer lip pink. Early $2\frac{1}{2}$ whorls having the suture margined above with a narrow brown band. Aperture subquadrate. Outer lip with a shallow papuoid notch and a very short rostrum. Parietal wall thinly glazed. Spire depressed and produced at an angle of 95° . Sculpture consisting of wrinkles which are oblique above and spiral below the whorl periphery. Protoconch about one whorl, smooth, and coloured blackish purple.

Height	Width	
14 mm.	24 mm.	Holotype.
13.5 mm.	23.5 mm.	Paratype.

Remarks: This subspecies differs from *R. strabo* by being smaller, having a less developed rostrum, and having a subquadrate aperture.

Specimens examined: NORTHEAST NEW GUINEA: Dampier Id. [Karkar Id.] (ANSP).

Rhynchotrochus (*Rhynchotrochus*) *yulensis* (Brazier).

Plate 18, fig. 14-16.

Helix (*Geotrochus*) *yulensis* Brazier, 1876, *Proc. Linn. Soc. New South Wales*, (1), 1:105 (Yule Island, New Guinea); Cox, 1888, *Proc. Linn. Soc. New South Wales*, (2), 2:1063, pl. 21, fig. 5-6. [Lectotype, here selected, AM no. C.62382; and paratypes, MCZ no. 191398; ANSP no. 31551.]

Description: Shell subdepressed, trochiform, keeled, imperforate, nearly smooth, glossy and reaching 21.5 mm. in greatest diameter. Ground

colour ivory to pale yellow. Spiral colouration consisting of several narrow yellow to light brown bands on the base of the whorl. The upper half of the whorl is irregularly marbled with brown to purplish brown or yellow. Lip a light brown to rather dark reddish brown. Whorls 4 to 4½, moderately to acutely keeled; the body whorl flattened above the periphery and convex below. Spire subdepressed and produced at an angle of about 95°. Aperture subelliptical, moderately rostrate and usually slightly descending. Outer lip slightly reflected below and cast at an angle of about 35° from the base. Parietal wall with a very thin glaze. Columella very short and slightly flattened. Suture slightly indented. Sculpture consisting of numerous fine, irregular wrinkles, which are oblique above the whorl periphery and spiral below. Protoconch 1½ whorls, smooth, brown or colourless.

Height	Width	
18 mm.	24 mm.	Agats, West New Guinea.
14.5 mm.	22.5 mm.	Yule Id., Papua.
13 mm.	19.5 mm.	" "
12.5 mm.	21 mm.	" "

Remarks: This species is closely related to *R. taylorianus* (Adams and Reeve). It differs, however, in being much smaller, having a convex rather than flattened base to the body whorl, and having the outer lip less rostrate. The specimens from Agats, West New Guinea, appear to be this species. They differ only in a slight degree from specimens from Yule Id. by being a little larger and having the spiral bands solid on the last half of the body whorl.

Specimens examined: WEST NEW GUINEA: Agats (5° 30' S.; 138° 20' E.) (MCZ). PAPUA: Yule Island (AM; NMV; MCZ; ANSP).

Rhynchotrochus (Rhynchotrochus) jucundus (Fulton).

Plate 15, fig. 3-4. Plate 19, fig. 12-14.

Papuina jucunda Fulton, 1902, *Ann. Mag. Nat. Hist.*, (7), 9:317 (German New Guinea). [Holotype, BMNH, 1902.5.28.39.]

Papuina caputserpentis Kobelt, 1914, *Nachrbl. Dtsch. Malakozool. Ges.*, 46:6; *ibid.* 1917, 49:6, pl. 1, fig. 5 (Agololo [Huon Peninsula] New Guinea).

Description: Shell subdepressed, trochiform, imperforate, nearly smooth, glossy and reaching 20 mm. (¾ inch) in greatest diameter. Ground colour a light straw-yellow with irregular, axial patches of a lighter yellow. Whorls 4½, sharply keeled, and slightly concave above the whorl periphery. Suture moderately indented. Spire subdepressed and produced at an angle of 85°. Aperture auricular in shape. Parietal wall thinly glazed. Outer lip slightly reflected with a well defined notch and coloured a dark brown. The aperture is cast at an angle of 55° from the base. Columella short. Sculpture consisting of irregular wrinkles, oblique above and in spiral arrangement below the whorl periphery. Protoconch of 1½ whorls and smooth.

Height	Width	
13 mm.	20 mm.	Northeast New Guinea.
14 mm.	23 mm.	Holotype of <i>jucundus</i> Fulton.
10 mm.*	23 mm.	Holotype of <i>caputserpentis</i> Kobelt.

* Error. According to his illustration, this measurement should be 14 mm.

Remarks: In relationship this species is fairly close to *R. taylorianus*, differing by being smaller than most specimens of this latter species, by having a smaller rostrum on the outer lip and by having irregular, axially arranged light yellow spots, a colour pattern different from that in *taylorianus*.

Specimens examined: NORTHEAST NEW GUINEA: (MCZ; BNMH).

Rhynchotrochus (Rhynchotrochus) rhynchotus (Boettger).

Plate 17, fig. 1-3. Plate 19, fig. 4-5.

Papuina rhynchota Boettger, 1918, *Abh. Senckenb. Naturf. Ges.*, 36:292, pl. 23, fig. 16a-c (Bismarck Archipelago). [Lectotype, SMF no. 5937.] *Papuina tayloriana septentrionalis* I. & B. Rensch, 1929, *Zool. Anz.*, 80:79 (Weiten Bucht, Neu-Pommern [Wide Bay, New Britain], Bismarck Archipelago). [Holotype, BM; paratype, MCZ no. 83880.]

Description: Shell subdepressed, light in structure, but strong, reaching 22 mm. in greatest diameter, imperforate, shining and finely sculptured. Whorls 4, and acutely keeled. Ground colour ivory with a variable number of relatively narrow, chocolate-brown spiral bands of varying widths, both above and below the whorl periphery. Protoconch and lip also brown. Spire depressed, obtuse and produced at an angle of about 105°. Aperture subquadrate and slightly descending. Parietal lip consisting of a very thin glaze; palatal lip reflected below, and with a rather small papuinoid notch. Lip produced at an angle of about 45° from the base. Columella acutely arched, and with a small white area on the inner edge of the lip. Suture moderately well defined and not indented. Sculpture consisting of fine diagonal and irregular grooves.

Height	Width	
14 mm.	22.5 mm.	Wide Bay, Kalei, New Britain.
13 mm.	24 mm.	„ „ „ „ „

Remarks: The name *rhynchotus* apparently was overlooked by I. and B. Rensch. Dr. Eugen Wolf, who had originally collected the specimens, gave only "Bismarck-Archipel" as the locality. On the basis of the studies of I. and B. Rensch we can limit the type locality to New Britain.

In relationship it appears close to *R. taylorianus* (Adams and Reeve) differing, however, by having a less developed rostrum and only a shallow papuinoid notch.

Specimens examined: NEW BRITAIN: Wide Bay, Karlei Terr. (MCZ).

Rhynchotrochus (Rhynchotrochus) wiegmanni (v. Martens).

Plate 17, fig. 4-12. Plate 20, fig. 8-11. Text fig. 5.

Helix (Geotrochus) wiegmanni v. Martens, 1894, *Conchologische Mittheilungen*, 3:10 (Solomon Islands and Tuom [Island, Siassi Islands, Bismarck Archipelago]); v. Martens, 1897, *Arch. Naturgesch.*, 63:41, pl. 8, fig. 1-4. [Holotype, BM.]

Papuina tuomensis Ancey, 1895, *Proc. Linn. Soc. New South Wales*, (2), 10:375, pl. 26, fig. 3 (German New Guinea [Tuom Id., Siassi Ids., Bismarck Archipelago]).

Papuina tuomensis, var. *heterochroa* Ancey, 1895, *Proc. Linn. Soc. New South Wales*, (2), 10:375, pl. 26, fig. 4 (German New Guinea [Tuom Id.,

Siassi Ids., Bismarck Archipelago]).

Papuina tuomensis, var. *violaceo-flava* Ancey, 1895, *Proc. Linn. Soc. New South Wales*, (2), 10:376 (Tuom Id. [Siassi Ids., Bismarck Archipelago]).

Papuina wiegmanni disjuncta Rensch, 1934, *Arch. Naturgesch.* (N.S.), 3:473, text fig. 13 (Pomeo, Jacquinot Bay, New Britain, Bismarck Archipelago). [Holotype, BM; paratypes, BMS no. 3921a; SMF no. 9594/3.]

Papuina wiegmanni conjuncta Rensch, 1934, *Arch. Naturgesch.* (N.S.), 3:473, text fig. 13 (Talassee and Ulamona, North coast of New Britain, Bismarck Archipelago). [Holotype, BM; paratypes, MCZ no. 225206; SMF no. 9593/3.]

Papuina wiegmanni parvula Rensch, 1940, *Zool. Anz.*, 131:35 (Unea, French Islands [Vitu Islands], Bismarck Archipelago). [Holotype, BM; paratype, MCZ no. 248799.]

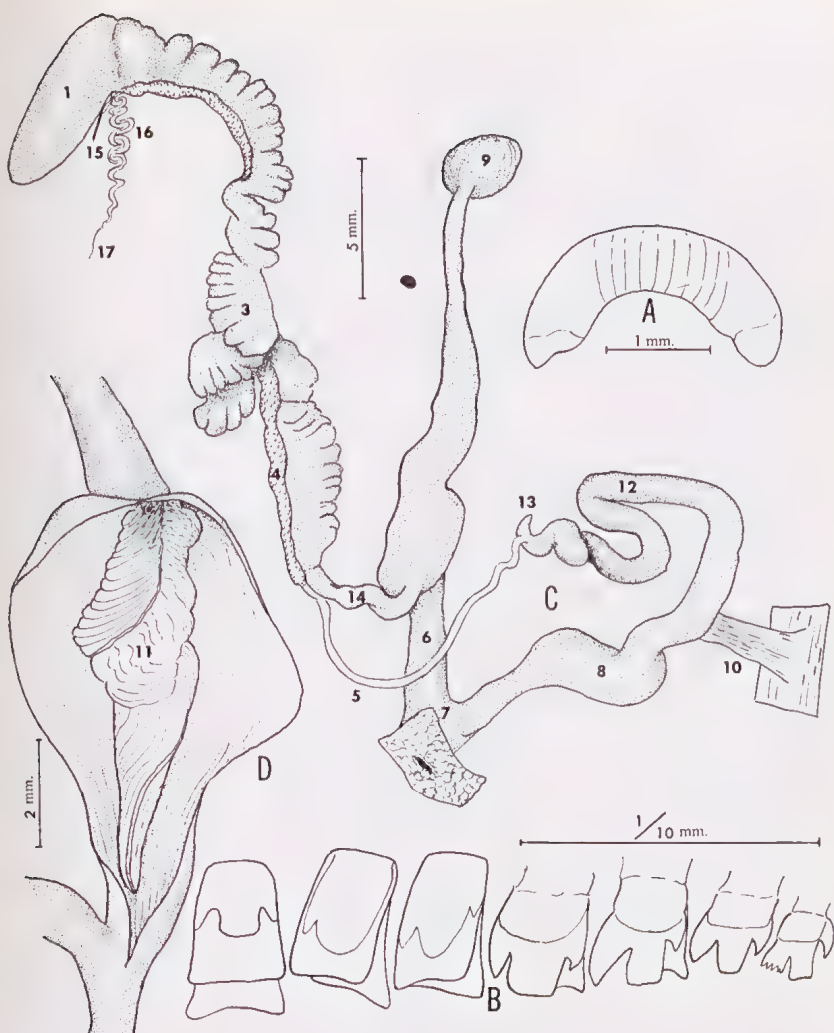
Description: Shell subdepressed to subglobose, imperforate, smooth, glossy and reaching 26 mm. in greatest diameter. Whorls $4\frac{1}{2}$, and strongly convex. Ground colour white to ivory-white with the early whorls pink, white, or purplish. Usually banded with chocolate-brown, one band above and one below the periphery. These bands are often restricted to the body whorl and occasionally are entirely lacking. They can be very irregular both in width and in the intensification of colour. In a few specimens the bands merge into the brown of the lip, while in others they are separated from the lip by a narrow area of the ground colour. Occasionally there are two secondary bands, one at the suture and a thread-like band just above the suprapерipheral band. Occasional specimens are completely white but in transmitted light the banded areas are translucent white and the remainder of the shell is an opaque white. Spire subdepressed, obtuse, and produced at an angle of about 105° . Aperture auricular in outline, descending slightly, produced at an angle of about 30° from the base and with a well defined papuinoid notch. Outer lip a dark chocolate-brown and reflected. Inner lip consisting of a thin glaze of brown on the parietal area. Columella short, broad, and merging into the base of the outer lip. Suture slightly indented. Sculpture consisting of very fine, oblique, growth lines; a few specimens possessing irregular and fine interrupted spiral threads. Protoconch not differentiated.

Height	Width	
18 mm.	25.5 mm.	Tuom Id., Siassi Ids.
12 mm.	20 mm.	" "
15.5 mm.	25.5 mm.	Talassee, New Britain.
19 mm.	26 mm.	Paratypes of <i>disjuncta</i> Rensch.

Remarks: The whereabouts of Ancey's¹ types is unknown to us; his collection was sold to Garet, a Paris shell dealer, and subsequently dispersed. We know that many, if not all, of Ancey's types from Polynesia were purchased by C. M. Cooke for the Bishop Museum, Honolulu, Hawaii.

The taxonomy of this species has had a curious history. Many specimens were collected from the little island of Tuom, Siassi Islands, New Britain. These were originally sent to O. Staudinger, a Berlin insect dealer, from whom von Martens obtained his specimens. He described the various colour forms under the single name *wiegmanni*. About the same time Boettger also had access to this material and he gave manuscript names to several colour variations. Sets of these specimens were sold to

¹ Nautilus 27:59, 1907.



Text figure 5.

Rhynchotrochus wiegmanni (v. Martens). Cape Hoskins, New Britain Id., Bismarck Islands. A. Jaw with fine transverse lines. B. Radular teeth. C. Reproductive system. D. Dissected penis. (See text figure 1 for labelling of reproductive system.)

various collectors under these manuscript names. Such a series was obtained by C. F. Ancey who, realizing that these were manuscript names, published them in the *Proceedings of the Linnean Society of New South Wales*, 1895, (2), 10:374-381. Apparently Ancey had not seen von Martens' description which had appeared only the year before.

Foot (in the single preserved specimen available) light tan, becoming grayish posteriorly, sole of foot smooth; head and tentacles unicolourous and light tan; mantle light, the edge a medium gray. Reproductive system similar to that for *taylorianus*. Marginal teeth of radula differing from *taylorianus* and *kubaryi* in having the inner denticle serrated.

This is a variable species, both in size and colouration, a fact which is reflected in the synonymy given above. Our present series is too small for a complete understanding of these variations, but certainly some of them occur together in a single colony.

The locality "Solomon Islands" by E. von Martens is in error.

Specimens examined: VITU IDS.: Unea Id. (ANSP). NEW BRITAIN: Pilelo Id., Cape Mercus (MCZ; CM); Talassea (MCZ; BM); Jacquinot Bay; Ulamona (both ANSP; BM); Valoka, Cape Hoskins (UMK; MCZ); Tuom Id., Siassi Ids. (BMNH; MCZ; MM; USNM); southern end of Umboi Id., Siassi Ids. (J. Poling). NORTHEAST NEW GUINEA: Finschhafen (B. & J. Grigg).

Rhynchotrochus albocarinatus (Smith).

Plate 16, fig. 20. Plate 18, fig. 4-6; 11-13.

Helix (Papuina) albocarinata Smith, 1887, *Ann. Mag. Nat. Hist.*, (5), 19:422 (South Cape, British New Guinea [Trobriand Islands]). [Holotype, BMNH no. 87.5.19.2; paratype, AM no. C.11592.]

Geotrochus trobriandensis Hedley, 1891, *Proc. Linn. Soc. New South Wales*, (2), 6:92, pl. 9, fig. 28 (Trobriand Islands). [Lectotype, Queensland Museum no. MO.2810; paratypes, BMNH no. 92.2.6.45-50, ANSP no. 63071, and MCZ no. 225343.]

Rhynchotrochus mysticus Iredale, 1941, *Aust. Zool.*, 10:78, pl. 4, fig. 7 (South Cape, British New Guinea [Trobriand Islands]). [Holotype, AM no. C.62658.]

Description: Shell subglobose, reaching 27 mm. in greatest diameter, imperforate, smooth and glossy. Whorls $4\frac{1}{2}$, strongly convex, and usually keeled at the periphery. Ground colour ivory with the early whorls a light yellowish brown to pinkish brown. Colour pattern variable, consisting of a series of spiral bands, both above and below the periphery, which are translucent white on opaque white; or the colour of the translucent band may vary in intensity from a light to a rather dark brown. The bands may be narrow and more or less evenly spaced, or two or more bands may coalesce. Whorls 5, convex, and with a rounded keel at the periphery. Spire subdepressed and produced at an angle of about 95° . Aperture subquadrate, cast at an angle of 40° from the base and with the papuinoide notch slightly to moderately developed. Outer lip narrow, reflected and white to chocolate-brown in colour. Inner lip consisting of a very thin glaze on the parietal wall. Suture slightly indented. Sculpture consisting of microscopic wrinkles with the irregular grooves running in more or less an oblique direction. Protoconch of $1\frac{1}{2}$ whorls and smooth.

Height	Width	
17 mm.	27 mm.	N.W. Fergusson Id., D'Entrecasteaux Ids.
16.5 mm.	24 mm.	Omarakana, central Kiriwina, Trobriand Ids.
16 mm.	24 mm.	Sinaketa, South Kiriwina, Trobriand Ids.
16 mm.	22.5 mm.	Kaileuna Id., Trobriand Ids.

Remarks: Iredale instituted the genus *Henga*, selecting as its type species *Geotrochus trobriandensis* Hedley and included in it the species *Papuina williamsi* Clench and Archer and *Henga deliciosa* Iredale. In our opinion these are certainly species in the genus *Rhynchotrochus*.

This species is most closely related to *R. williamsi* but differs in having a dark brown lip, numerous spiral bands of brown and a white protoconch. The lip of *R. williamsi* is pink, the spiral bands show only as translucent areas and the protoconch is usually a dark brown. In addition *williamsi* is usually somewhat larger than *albocarinatus* and the periphery of the body whorl is more acute.

The type locality, South Cape, British New Guinea, is in error. The type locality is here selected to be Kiriwina Island, Trobriand Islands. This species is restricted to the D'Entrecasteaux and Trobriand Islands just north of the eastern end of New Guinea.

Specimens examined: D'ENTRECASTEAUX ISLANDS: N.W. Fergusson Id. (MCZ; CMP); Seymour Bay, Fergusson Id. (MCZ); Goodenough Id. (MCZ; BMNH; MM). TROBRIAND ISLANDS: Kaileuna Id. (MCZ; CMP); Vakuta Id. (MCZ; UM); Sinaketa, South Kiriwina Id. (MCZ); Omarakana, central Kiriwina Id. (MCZ; UM; BPBM; CMP); near Losuia, Kiriwina Id. (MCZ; CMP).

Rhynchotrochus (Rhynchotrochus) woodlarkianus (Souverbie).

Plate 18, fig. 13. Plate 22, fig. 7-10.

Helix woodlarkiana Souverbie, 1863, *J. Conchyliol.*, 11:76; 172, pl. 5, fig. 2 (Woodlark Island). [Holotype, Bordeaux Museum, France.]

Henga deliciosa Iredale, 1941, *Aust. Zool.*, 10:81, pl. 4, fig. 15 (Laughlan Island, Woodlark Islands). [Holotype, AM no. C.62666.]

Description: Shell subglobose, reaching 20 mm. in greatest diameter, imperforate, smooth and glossy. Colour and pattern variable. Shell basically translucent white with spiral bands and zig-zag patterns in opaque white. The translucent areas of the shell may be a light to dark reddish brown. Spire subdepressed and produced at an angle of about 105°. Aperture subquadrate and cast at an angle of 50° from the base. Papuinoid notch slightly to moderately developed. Outer lip narrow, reflected, and white to light brown. Inner lip consisting of a very thin glaze on the parietal wall. Suture slightly indented. Sculpture consisting of minute wrinkles with irregular grooves running in a more or less oblique direction above the whorl periphery and in spiral arrangement below. Protoconch of 1½ whorls and smooth.

Height	Width	
13.5 mm.	20 mm.	Woodlark Id.
11 mm.	18 mm.	Holotype of <i>deliciosa</i> Iredale.
14 mm.	20 mm.	Woodlark Id.
11 mm.	15.4 mm.	„ „

Remarks: In relationship this species is close to *Rhynchotrochus albocarinatus* (Smith). It differs in being very much smaller and in its type of colour pattern. In general the spiral pattern is far more uniform and pronounced in *albocarinatus*. In addition, the lip of *albocarinatus*, except in the albino form, is a dark chocolate-brown and the lip is not as broadly reflected as in *woodlarkianus*. *Henga deliciosa* Iredale appears to be an albino form of *woodlarkianus*.

Specimens examined: WOODLARK ISLANDS: Woodlark Id. (MCZ; BMNH; CMP; ANSP; UM; USNM); Laughlan Id. (AM).

Rhynchotrochus (Rhynchotrochus) williamsi (Clench and Archer).

Plate 22, fig. 1-6.

Papuina williamsi Clench and Archer, 1936, *Nautilus*, 49:88, pl. 5, fig. 4 (Omarukana, Kiriwina Island, Trobriand Islands). [Holotype, MCZ no. 110396; paratypes, MCZ no. 111149.]

Papuina williamsi atalanta Clench, 1936, *Nautilus*, 50:54 (Omarukana, Kiriwina Island, Trobriand Islands). [Holotype, MCZ no. 111151; paratypes, MCZ no. 111152.]

Description: Shell globose, reaching 27 mm. in greatest diameter, imperforate, smooth and glossy. Ground colour ivory with a suffusion of yellowish to golden brown near the aperture. Specimens nearly uniform in colour with the colour more intense near the aperture or with numerous faint to pronounced spiral bands which are translucent when viewed through the aperture. Lip white to light pink. Whorls 5, convex and with a rounded keel at the periphery. Spire subdepressed and produced at an angle of about 95°. Aperture subquadrate, cast at an angle of 40° from the base and generally with the papuinoid notch moderately developed. Outer lip narrow and reflected. Inner lip consisting of a very thin glaze on the parietal wall. Suture slightly indented. Sculpture consisting only of microscopic wrinkles with the irregular grooves running in a more or less oblique direction above the whorl periphery and spirally below. Protoconch of 1½ whorls, smooth and coloured a blackish brown.

Height	Width	
21.5 mm.	25.7 mm.	Paratype.
20.5 mm.	27.5 mm.	„
20.5 mm.	27 mm.	„
20 mm.	25.5 mm.	„
17.5 mm.	25.5 mm.	Holotype.
19.5 mm.	26 mm.	Paratype.
18 mm.	25.5 mm.	„

Remarks: This species is very close to *R. albocarinatus* (Smith) differing mainly in its type of colouration. In *R. williamsi* the protoconch is blackish brown and the lip is pink or pinkish white, while in *albocarinatus*

the protoconch is white or glass-like and the lip a dark brown. Also the shell of *williamsi* is heavier and the lip more reflected. The colouration of *albocarinatus* is more uniform, not increasing greatly in intensity near the aperture as in *williamsi*.

This species is known only from Kiriwina Island in the Trobriand group.

Specimens examined: TROBRIAND ISLANDS: Omarakana, central Kiriwina Id. (MCZ; UM; AM).

Rhynchotrochus (Rhynchotrochus) rollsianus (Smith).

Plate 18, fig. 10.

Helix (Papuina) rollsiana Smith, 1887, *Ann. Mag. Nat. Hist.*, (5), 19:422, pl. 15, fig. 12 (South Cape, British New Guinea [Fergusson Island, d'Entrecasteaux Islands]). [Holotype, BMNH no. 83.3.23.3.]

Description: Shell subglobose, reaching 34 mm. in greatest diameter, imperforate, finely sculptured and glossy. Whorls $4\frac{1}{2}$, convex, rounded at the periphery, with occasional specimens showing a faint keel near the aperture. Ground colour white, early whorls generally suffused with pink, the parietal area also with a pink tinge. Most specimens have spiral bands of brown both above and below a broad white band at the periphery. The back of the outer lip usually is a rather deep orange. Protoconch white or blackish brown. Rarely specimens are found which are nearly white, having only the pink suffusion at the parietal area and the orange colouration behind the lip. Spire subdepressed and produced at an angle of about 110° . Aperture subquadrate and cast at an angle of 30° from the base. The papuina notch moderately developed. Outer lip wide, reflected and white. Inner lip consisting of only a thin glaze on the parietal wall. Suture slightly indented. Sculpture consisting of microscopic wrinkles with the irregular grooves running in a more or less oblique direction. Protoconch $1\frac{1}{2}$ whorls and smooth.

Height	Width	
20 mm.	34 mm.	Seymour Bay, Fergusson Id.
16 mm.	25.5 mm.	" " "
20.5 mm.	33 mm.	Salamo, "
16.5 mm.	25.5 mm.	" "
19.5 mm.	32 mm.	North West Fergusson Id.
17 mm.	25.5 mm.	" " "

Remarks: This is a very distinctive species and apparently not closely related to any other species in *Rhynchotrochus*.

The original locality of South Cape, British New Guinea, is certainly in error.

Specimens examined: D'ENTRECASTEAUX ISLANDS: N.W. Fergusson Id. (MCZ; UM); Seymour Bay (MCZ; CMP); Salamo (MCZ; UM), both Fergusson Id.; Fergusson Id. (AM; BPBM; UM; USNM; ANSP; MCZ).

Rhynchotrochus (Rhynchotrochus) rhombostomus (Pfeiffer).

Helix rhombostoma Pfeiffer, 1845, *Proc. Zool. Soc. Lond.*, p. 72 (locality unknown); Reeve, 1854, *Conchologia Iconica*, 7, fig. 1456.

Helix (Papuina) rhombostoma Pfeiffer. Pilsbry, 1891, *Manual of Conchology*, (2), 7:60, pl. 16, fig. 14-15.

Description: "Imperforate, trochiform, rather thin, obliquely striatulate, subdeccussated with very close concentric lines, rather shining, whitish-tawny, ornamented with a number of chestnut bands; spire short, conic; apex acute. Whorls 5, rather flat, the last acutely carinated, slightly convex beneath, little descending in front; peristome violaceous, upper margin expanded, impressed above, columellar margin straightened, dilated, flat, appressed."

Height	Width	
15 mm.	28 mm.	Holotype.

Remarks: This species is unknown to us and we give above Pilsbry's translation of Pfeiffer's original Latin description. Pilsbry relates it to *R. strabo* (Brazier) as being intermediate between that species and *R. louisianensis* (Forbes). The type locality may be somewhere in eastern New Guinea.

Rhynchotrochus (Rhynchotrochus) misima (Iredale).

Plate 16, fig. 10-12; 19.

Helix (Geotrochus) thomsoni Smith, 1889, *Ann. Mag. Nat. Hist.*, (6), 4:202, pl. 13, fig. 12-13 (St. Aignan [Misima] Island, Louisiade Islands); non *Helix thomsoni* Pfeiffer, 1871. [Lectotype of *thomsoni* Smith, BMNH no. 89.6.25.60.]

Violenga misima Iredale, 1941, *Aust. Zool.*, 10:81, pl. 4, fig. 16 (new name for *Helix (Geotrochus) thomsoni* Smith; non *H. thomsoni* Pfeiffer).

Description: Shell reaching 28 mm. in greatest diameter, solid in structure, imperforate and sculptured. Whorls 4 and convex. Colour ivory-white to purple and mottled. The mottled areas are translucent when viewed with transmitted light, are generally disposed in a diagonal pattern above the whorl periphery and occasionally below. Behind the lip there may be a narrow band of brownish yellow. Spire reduced, obtuse and produced at an angle of about 120°. Aperture descending, subquadrate in shape, with a well defined papuinoid notch and cast at an angle of 60° from the base. Parietal lip thinly glazed. Palatal lip white and broadly reflected. Columella very short. Suture well defined. Sculpture consisting of a very fine lacing of grooves and ridges set diagonally above the whorl periphery and in spiral arrangement below. Protoconch of 1½ whorls, white and smooth.

Height	Width	
15 mm.	26 mm.	Misima Island, Louisiade Islands.
16.2 mm.	27 mm.	" " "
17 mm.	28 mm.	" " "

Remarks: This species is close in its relationship to *R. louisianensis* (Forbes) which has a similar colour pattern. It differs by being brownish, having the lip pink and the aperture not descending. It is more distantly related to *R. williamsi* (Clench and Archer) from the Trobriand Islands and to *R. rollsianus* (Smith) of the d'Entrecasteaux Islands, differing from both in shape and colouration.

Specimens examined: LOUISIADE ISLANDS: Misima Id. [St. Aignan] (CM; USNM; MCZ; AM; UM; ANSP); Moturina Id. (AM; MCZ).

Rhynchotrochus (Rhynchotrochus) louisiadensis (Forbes).

Plate 16, fig. 18. Plate 19, fig. 15-16.

Helix louisiadensis Forbes, 1851, (in) *Narrative of the Voyage of H.M.S. Rattlesnake*, 2:376, pl. 2, fig. 8a-b (South-east Island [Tagula or Sudest], Louisiade Archipelago). [Holotype, BMNH no. 51.11.24.7.]

Helix millicentae Cox, 1871, *Proc. Zool. Soc. Lond.*, p. 323, pl. 34, fig. 2-2a (Louisiade Islands). [Lectotype, AM no. C. 62380; paratypes, ANSP and MCZ no. 191975.]

Violenga millicentae Cox. Iredale, 1941, *Aust. Zool.*, 10:81.

Description: Shell subglobose, imperforate, nearly smooth, glossy, and reaching 26 mm. (about 1 inch) in greatest diameter. Ground colour a pale ivory with numerous brownish bands both above and below the periphery. These bands may be fused in part or the banded area may be completely mottled. Lip white to light pink to a moderately dark purplish pink. Whorls $4\frac{1}{2}$, convex and occasionally bluntly keeled but generally with the periphery rounded. Spire subdepressed, slightly obtuse and produced at an angle of about 95° . Aperture subcircular, descending very slightly, generally with a poorly defined notch and cast at an angle of 45° from the base. Outer lip reflected. Parietal wall thinly glazed. Columella short. Suture slightly indented. Sculpture consisting of numerous irregular, oblique incised lines. Protoconch smooth and varying in colour from whitish to dark brown.

Height	Width	
19 mm.	25 mm.	Tagula [Sudest] Island, Louisiade Ids.
19.1 mm.	24.6 mm.	" "
16.5 mm.	22.5 mm.	Lectotype of <i>millicentae</i> Cox.

Remarks: *Helix millicentae* Cox is only a white lipped form of *louisiadensis* and in other respects it does not appear to differ from the typical form. Both white and pink lip forms may occur in the same colony.

This species is most closely related to *Rhynchotrochus misima* (Iredale) from Misima [St. Aignan] Island, Louisiade Islands. It differs, however, in being smaller, by having a far less pronounced papuinoïd notch, and in being tinged with pink rather than with lavender as is the case with *misima*.

So far as now known, this species is restricted to Tagula Island in the Louisiade Islands.

Specimens examined: LOUISIADE ISLANDS: Tagula [Sudest] Id. (MCZ; AM; M. Kleckham).

Rhynchotrochus (Rhynchotrochus) gurgustii (Cox).

Plate 16, fig. 7-9.

Helix (Geotrochus) gurgustii Cox, 1879, *Proc. Linn. Soc. New South Wales*, 4:114, pl. 16, fig. 1 (Rossel Island, Louisiade Archipelago). [Holotype, AM no. C.62668.]

Kathadena gurgustii Cox. Iredale, 1941, *Aust. Zool.*, 10:82.

Description: Shell trochiform, imperforate, nearly smooth, glossy, and reaching 32 mm. (about $1\frac{1}{4}$ inches) in greatest diameter. Ground colour an ivory-white with a subperipheral spiral band of brown. This

same brownish colouration margins the reflected portion of the outer lip. The margin of the lip within the aperture is pink. Whorls $5\frac{1}{2}$, sharply keeled to within $\frac{1}{2}$ whorl from the aperture, where the keel becomes rounded as it approaches the aperture. Spire somewhat elevated and produced at an angle of about 75° . Aperture sub-elliptical, rostrate, descending slightly, having a broad, shallow papuinoid notch and cast at an angle of 30° from the base. Outer lip reflected. Parietal wall thinly glazed. Columella very short. Suture slightly indented. Sculpture consisting of fine, irregular, and somewhat oblique granulations. Protoconch $1\frac{1}{2}$ whorls, smooth and glass-like.

Height	Width	
25.5 mm.	32 mm.	Rossel Island, Louisiade Archipelago.
23.5 mm.	30.5 mm.	„ „ „ „

Remarks: So far as known, this species is limited to Rossel Island. It appears to be a somewhat aberrant *Rhynchotrochus* but is allied to the *taylorianus* complex and is probably most closely related to *R. strabo* (Brazier). From *strabo* and *taylorianus* it differs by having more convex and higher whorls. The peripheral angle of the body whorl in *gurgustii* is 82° , while in *strabo* it is 65° - 70° , and in *taylorianus* it may be even more acute. From *taylorianus* it differs, in addition, by having a pink rather than a black lip.

Specimens examined: LOUISIADE ARCHIPELAGO: Rossel Id. (MCZ; AM).

Rhynchotrochus (Rhynchotrochus) gorenduensis (Brazier).

Helix (Geotrochus) gorenduensis Brazier, 1886, *Proc. Linn. Soc. New South Wales*, 10:841 (Gorendu, Maclay Coast [Huon Peninsula], New Guinea).

Remarks: We copy the description given by Brazier. Nothing is known about this species. Dr. D. F. McMichael reports that the types are not in the Australian Museum, where most of Brazier's material was deposited. This species was never figured and, so far as we know, it has not been collected again.

Description: "Shell imperforated, trochus-shaped, rather thin, obliquely, finely striated and transversely wrinkled, flesh tinted or cream colour; ornamented with pinkish opaque spots and dots; spire rather conoid; whorls 5, convex, the last more convex, the first three apical whorls dark rose-pink, the fourth a little lighter in colour, the fifth slightly keeled in front, cream coloured, and marked with opaque pinkish spots and dots, base convex, sculptured same as above; aperture triangular, very much produced and contracted in front, constricted behind the aperture, interior bright pink, peristome blackish-purple, slightly reflected; the right margin descending in front, columellar margin flattened and expanded, tinged with brown, margins joined with a thin pink callus entering spirally into the interior of the aperture.

"Two specimens of this very pretty species were found by Baron Miklouho-Maclay. One was dead and weatherbeaten, the other was found with the animal alive. The Baron informs me that the animal was black, and that the back of the neck was brown.

"Alt. 15, greater diam. 25, lesser 20 mill."

Subgenus *POMPALABIA* Iredale.

Pompalabia Iredale, 1941, *Aust. Zool.*, 10:80 (type species, *Helix naso* v. Martens, original designation).

Shells medium in size, reaching up to 35 mm. in greater diameter, imperforate, conical in shape and banded, mottled or unicolourous. Outer lip descending with a deep papuinoid notch and with a rather broad basal area. Parietal wall usually with a thickened callous. Lip coloured a dark brownish black. Sculpture consisting of fine, wavy, incised lines or with fine spiral incised lines.

Remarks: We are holding provisionally the following species in the subgenus *Pompalabia* until the anatomy can be examined (other than that of *R. macgillivrayi* Forbes which is covered in this report, the anatomy of which is almost identical with that of *Rhynchotrochus taylorianus* (Adams and Reeve)). The shell differs in colour pattern and in the peculiar form of the outer lip. Other than *R. meekianus* (E. A. Smith) and *R. macgillivrayi* (Forbes) the parietal area has a rather thick callous.

Rhynchotrochus (Pompalabia) meekianus (E. A. Smith).

Plate 16, fig. 21.

Papuina meekiana E. A. Smith, 1905, *Ann. Mag. Nat. Hist.*, (7), 16:193, text fig. (Owgarra, on the Anabunga River, "two days" beyond Mafulu [Central Division], Owen Stanley Range (British New Guinea [Papua] about 8000 feet). [Holotype, BMNH no. 1905.10.23.86.]

Description: Shell subdepressed, trochiform, imperforate, finely sculptured, glossy and reaching 29 mm. (about $1\frac{1}{2}$ inches) in greatest diameter. Ground colour a grayish white with some irregular patches of brownish black which are translucent. Outer lip a dark purplish black. Whorls 5, slightly convex and acutely keeled. Spire subdepressed and produced at an angle of 88° . Aperture subquadrate in shape, rostrate and with a deep V-shaped notch about midway on the upper half of the outer lip. Aperture cast at an angle of about 44° from the base. Parietal wall thinly glazed. Columella very short. Suture slightly indented. Sculpture consisting of numerous, irregular, incised lines, which are oblique above and spiral below the whorl periphery. Protoconch smooth, one whorl and white.

Height	Width	
19 mm.	29 mm.	Holotype.
17 mm.	27 mm.	New Guinea.

Remarks: This is a very rare species to judge by the few specimens in collections. It is transitional between *Rhynchotrochus* and *Pompalabia*. The colouration and the lack of a parietal callous relate it to *Rhynchotrochus* and the peculiar infolded lip as well as the deep papuinoid notch relate it to *Pompalabia*.

Specimens examined: PAPUA: Owen Stanley Range (UM); Owgarra, Anabunga River, Owen Stanley Range (BMNH).

Rhynchotrochus (Pompalabia) naso (v. Martens).

Plate 17, fig. 13-15. Plate 18, fig. 7-9.

Helix hundsteini [sic] Brazier, 1881, *Proc. Linn. Soc. New South Wales*, 5:637 [*nomen nudum*] (Base of Mt. Astrolabe, British New Guinea).

Helix naso v. Martens, 1883 (Feb.), *Jb. Dtsch. Malak. Ges.* 10:82 (Taburi, Astrolabe "Bay" [Mt.], Southeast New Guinea). [Holotype BM.]

Helix (Geotrochus) tapparonei Smith, 1883 (March), *Ann. Mag. Nat. Hist.*, (5), 11:190 ("D'entrecasteaux Is." [foot of Mt. Astrolabe]). [Holotype, BMNH no. 83.1.6.3.]

Helix hunsteinei Brazier, 1884, *Proc. Linn. Soc. New South Wales*, 9:805 [nomen nudum].

Helix (Papuina) naso v. Martens. Pilsbry, 1901, *Man. of Conchology*, (2), 7:56, pl. 2, fig. 32-35.

Papuina gemina Fulton, 1902, *Ann. Mag. Nat. Hist.*, (7), 9:183 (River Arva [Aroa], British New Guinea at 5000 feet). [Lectotype, BMNH no. 1902.5.28.37.]

Description: Shell subdepressed, trochiform, imperforate, finely sculptured, glossy and reaching 39 mm. (1½ inches) in greatest diameter. Ground colour a grayish white with or without spiral bands of pale brown, or with irregular radiating patches of purplish rose above the whorl periphery. Outer lip a brownish black both inside and outside. Parietal wall with a brownish black callous. Whorls 5, nearly flat sided and acutely keeled, the last whorl swollen behind the lip. Spire subdepressed and produced at an angle of 95°. Aperture auriculate, the outer lip with two deep lobes formed by the infolding of the papuinoid notch and usually with 1 or 2 small teeth at the base of the notch. Aperture cast at an angle of 22° from the base. Columella short, slightly arched. Base of the lip near the columella broad and having 2 to 4 small teeth on its inner margin. Sculpture consisting of numerous, irregular, incised lines, oblique above and spiral below the whorl periphery. Protoconch 1 to 1½ whorls and smooth.

Height	Width	
21 mm.	35 mm.	Holotype.
21 mm.	32.5 mm.	Inland from Port Moresby.
19 mm.	28.5 mm.	New Guinea.

Remarks: This species, similar to *R. meekianus*, appears to be very rare. It differs from *meekianus* by being larger, having a thickened parietal callous and small tooth-like processes on the base of the lip. *P. gemina* Fulton appears to be only a smaller race of this species.

Specimens examined: PAPUA: Inland from Port Moresby (MCZ); River Aroa (BMNH); Taburi, Mt. Astrolabe (BM).

Rhynchotrochus (Pompalabia) macgillivrayi (Forbes).

Plate 16, fig. 13-15; 22. Text fig. 6.

Helix macgillivrayi Forbes, 1852, [in] John Macgillivray, *Narrative of the Voyage of H.M.S. Rattlesnake*, London, 2:377, pl. 3, fig. 1 (Frankland Islands [Queensland, Australia]). [Holotype, BMNH no. 51.4.30.1; Paratype, MCZ no. 188107.]

Rhynchotrochus macgillivrayi extensor Iredale, 1938, *Aust. Zool.* 9: pt. 3, p. 92, pl. 12, fig. 3 (Annam River near Cairns, North Queensland, Australia). [Holotype, AM no. C.62671.]

Description: Shell subdepressed, trochiform, imperforate, finely sculptured, glossy and reaching 25 mm. (1 inch) in greatest diameter. Ground colour a yellowish brown and flecked with small black dots which when viewed from within the aperture are translucent. Outer lip black at

the point of infolding, then brown. The lip edge is white as well as its inner margin. The parietal wall is not calloused. The papuinoid notch deep and forming two unequal embayments, the lower rounded and small, the upper broad and angulated. Whorls 5, nearly flat sided and acutely keeled, the last whorl slightly swollen behind the lip. Aperture subauriculate. No teeth on lower point of the notch nor on the broad basal portion of the lip. Spire subdepressed and produced at an angle of about 80°. Sculpture consisting of numerous, fine, spiral incised lines. Protoconch of 1½ whorls, smooth and purple in colour.

Height	Width	
18 mm.	25.5 mm.	Tully Falls, Tully, North Queensland.
18 mm.	22.5 mm.	Frankland Island, Queensland (Paratype).
19 mm.	24 mm.	Yungaburra scrub, near Atherton, Queensland.
17 mm.	25.5 mm.	Yungaburra scrub, near Atherton, Queensland.

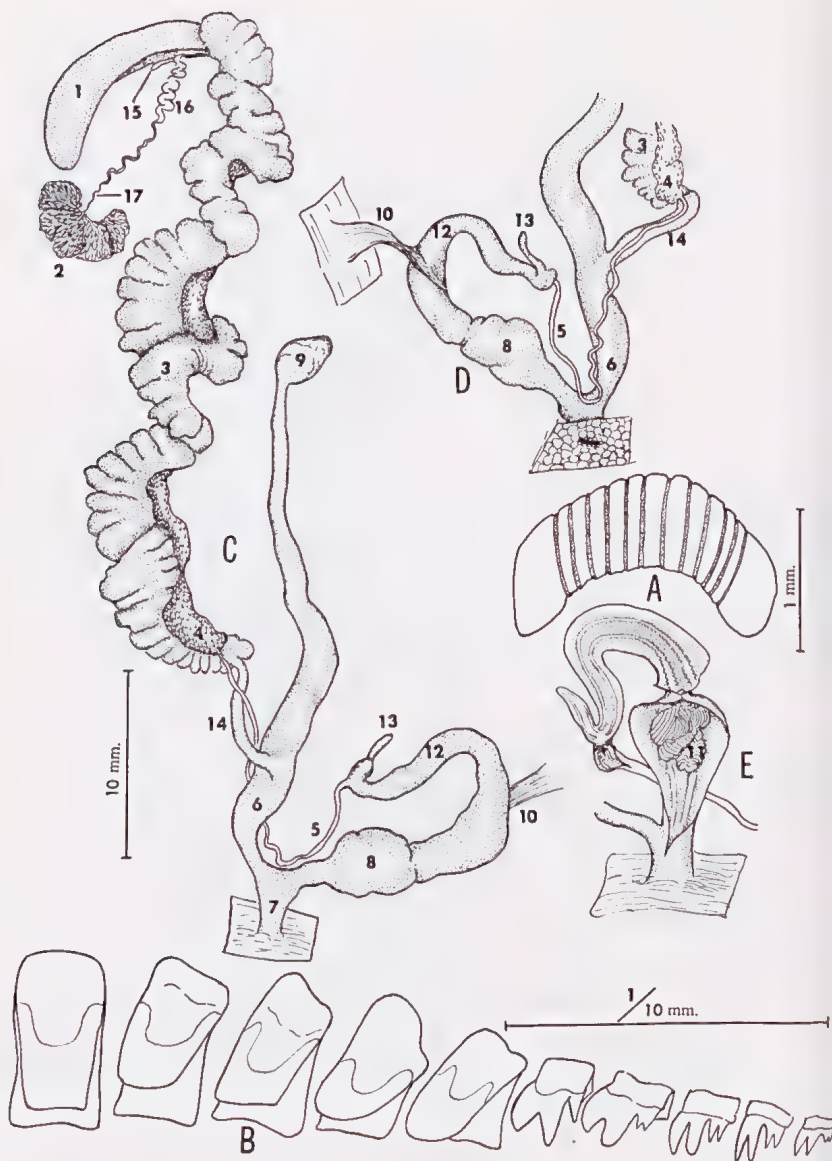
Remarks: This species differs from the other members of *Pompalabia* by its yellowish brown colour, by having small translucent black spots and fine, spiral, incised lines. The lack of a parietal callous relates it to *meekianus* but in all other respects they are quite dissimilar. The subspecies *extensor* does not differ in any of its characters from that of *macgillivrayi*. So far as known this species is limited to north Queensland.

The foot is white to light gray and smooth on the undersurface, darkening at the edges; upper surface charcoal-gray shading into a chestnut-brown behind the head. Mantle edge a purple-brown. Only a single specimen was available for dissection so that variation in the reproduction system could not be studied. As shown in figure 6, the reproductive system is similar to that of *R. taylorianus*. The strongly ribbed jaw and the marginal teeth of the radula are quite different from other species of *Rhynchotrochus* which have been studied.

Specimens examined: QUEENSLAND: Frankland Islands (AMNH; MCZ); Tully Falls, Tully (J. A. Grigg; MCZ); Lankelly Creek, McIlwraith Ranges; Redlynch (both MCZ); Yungaburra scrub, near Atherton (J. A. Marsh; R. Jackson; MCZ); Daintree River north of Cairns (AM).

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Text figure 6.

Rhynchotrochus macgillivrayi (Forbes). Daintree River, North of Cairns, Queensland, Australia. A. Jaw with strong transverse grooves. B. Radular teeth. C. Reproductive system. D. Basal portion reversed to show normal position of vas deferens. E. Penis dissected. (See text figure 1 for labelling of reproductive system.)

EXPLANATION OF PLATES

PLATE 15

- Fig. 1-2: *Papuina planogyra* Möllendorff. Near Constantinhafen, Astrolabe Bay, New Guinea. Lectotype, SMF 8641 [= *R. taylorianus* (Adams and Reeve)] (nat. size).
- Fig. 3-4: *Papuina caputserpentis* Kobelt. Algalolo [Huan Peninsula], New Guinea. Lectotype, SMF 8656 [= *R. taylorianus* (Adams and Reeve)] (nat. size).
- Fig. 5-6: *Papuina tayloriana genulabris* Möllendorff. Constantinhafen, New Guinea. Lectotype, SMF 8656 [= *R. taylorianus* (Adams and Reeve)] (nat. size).
- Fig. 7-9: *Rhynchotrochus monticola* Iredale. Mt. Astrolabe [Central Division], Papua. Holotype, AM C. 62556 [= *R. taylorianus* (Adams and Reeve)] (Fig. 7, 2X; fig. 8-9, nat. size).
- Fig. 10-12: *Rhynchotrochus sinucola* Iredale. Cloudy Bay, Papua. Holotype, AM C. 19510. [= *R. taylorianus* (Adams and Reeve)] (nat. size).
- Fig. 13-15: *Rhynchotrochus praeffectus* Iredale. Collingwood Bay, Northeast Papua. Holotype, AM C. 18887. [= *R. taylorianus* (Adams and Reeve)] (nat. size).
- Fig. 16-18: *Rhynchotrochus vallicola* Iredale. Purari River, Papua. Holotype, AM C. 30643. [= *R. strabo* (Brazier)] (nat. size).

PLATE 16

All figures about $\frac{3}{4}$ X.

- Fig. 1-3: *Helix katauensis* Tapparone-Canefri. Katau [Binaturi River, 10 miles west of Daru, Western Division, Papua]. Holotype, GM. [= *R. strabo* (Brazier)].
- Fig. 4-6: *Helix rhynchonella* Tapparone-Canefri. Anus Id., South Japan Id., West New Guinea. Holotype, GM. [= *R. taylorianus* (Adams and Reeve)].
- Fig. 7-9: *Helix (Geotrochus) gurgustii* Cox. Rossel Island, Louisiade Ids. Holotype, AM C. 62668. [= *R. gurgustii* (Cox)].
- Fig. 10-12: *Rhynchotrochus misima* (Iredale). Misima Id., Louisiade Ids. (Figured specimen of Iredale).
- Fig. 13-15: *Rhynchotrochus macgillivrayi extensor* Iredale. Annam River, near Cairns, North Queensland. Holotype, AM C. 62671. [= *R. macgillivrayi* (Forbes)].
- Fig. 16: *Helix tayloriana* Adams and Reeve. Locality unknown [Area about Port Moresby, Papua]. Holotype, BMNH 74.12.11.214. [= *R. taylorianus* (Adams and Reeve)].
- Fig. 17: *Papuina tayloriana dampierensis* Fulton. Dampier Id., Northeast New Guinea. Holotype, BMNH 1922.2.24.35. [= *R. strabo dampierensis* (Fulton)].
- Fig. 18: *Helix louisiadensis* Forbes. South-East Id., Louisiade Archipelago. Holotype, BMNH 51.11.24.7. [= *R. louisiadensis* (Forbes)].
- Fig. 19: *Helix (Geotrochus) thomsoni* Smith. St. Aignan Id. [Misima Id.], Louisiade Islands. Lectotype BMNH 89.6.25.60. [= *R. misima* (Iredale)].
- Fig. 20: *Helix (Papuina) albocarinata* Smith. Trobriand Ids. Holotype, BMNH 87.5.19.2. [= *R. albocarinatus* (Smith)].
- Fig. 21: *Papuina meekiana* Smith. Owarra, on the Anabunga River, two days beyond Mafulu, New Guinea. Holotype, BMNH 1905.10.23.86. [= *R. meekianus* (Smith)].
- Fig. 22: *Helix macgillivrayi* Forbes. Frankland Ids., Queensland, Australia. Holotype, BMNH 51.4.30.1. [= *R. macgillivrayi* (Forbes)].

PLATE 17

- Fig. 1-3: *Papuina tayioriana septentrionalis* I. and B. Rensch. Wide Bay, New Britain, Bismarck Archipelago. Holotype, BM. [= *R. rhynchotus* (Boettger)] (about 1½ X).
- Fig. 4-6: *Papuina wiegmanni disjuncta* Rensch. Pomeo, Jacquinot Bay, New Britain, Bismarck Archipelago. Holotype, BM. [= *R. wiegmanni* (v. Martens)] (about 1½ X).
- Fig. 7-9: *Papuina wiegmanni conjuncta* Rensch. Talassea and Ulamona, north coast of New Britain, Bismarck Archipelago. Holotype, BM. [= *R. wiegmanni* (v. Martens)] (about 1½ X).
- Fig. 10-12: *Helix (Geotrochus) wiegmanni* v. Martens. Tuom Id., Siassi Ids., Bismarck Archipelago. Holotype, BM. [= *R. wiegmanni* (v. Martens)] (about nat. size).
- Fig. 13-15: *Helix naso* v. Martens. Taburi, Astrolabe Mt., British New Guinea. Holotype, BM. [= *R. naso* (v. Martens)] (1.3 X).

PLATE 18

- Fig. 1-3: *Henga deliciosa* Iredale. Laughlan Island, Woodlark Islands. Holotype, AM C. 62666. [= *R. woodlarkianus* (Souverbie)] (nat. size).
- Fig. 4-6: *Rhynchotrochus mysticus* Iredale. Trobriand Islands. Holotype, AM C. 62658. [= *R. albocarinatus* (Smith)] (nat. size).
- Fig. 7: *Helix (Geotrochus) tapparonei* Smith. Foot of Mt. Astrolabe, Papua. Holotype, BMNH 83.1.6.3. [= *R. naso* (v. Martens)] (nat. size).
- Fig. 8-9: *Papuina gemina* Fulton. River Arva [Aroa], British New Guinea at 5,000 ft. Fig. 8. Lectotype, BMNH 1902.5.28.37; Fig. 9. Paratype, BMNH 1902.5.28.38. [= *R. naso* (v. Martens)] (nat. size).
- Fig. 10: *Helix (Papuina) rollsiana* Smith. Fergusson Island, d'Entrecasteaux Ids. Holotype, BMNH 83.3.23.3. [= *R. rollsianus* (Smith)] (nat. size).
- Fig. 11-13: *Geotrochus trobriandensis* Hedley. Trobriand Ids. Lectotype, Queensland Museum M02810. [= *R. albocarinatus* (Smith)] (1.5X).
- Fig. 14-16: *Helix (Geotrochus) yulensis* Brazier. Yule Island, Papua. Lectotype, AM C. 62382. [= *R. yulensis* (Brazier)] (1.5X).

PLATE 19

- Fig. 1-2: *Papuina kubaryi* Möllendorff. Constantinhafen [Astrolabe Bay] German New Guinea. Lectotype, SMF 8635a. [= *R. kubaryi* (Möllendorff)] (nat. size).
- Fig. 3: *Papuina kubaryi albina* Möllendorff. Constantinhafen. [Astrolabe Bay] German New Guinea. Lectotype, SMF 8637. [= *R. kubaryi* (Möllendorff)] (nat. size).
- Fig. 4-5: *Papuina rhynchota* Boettger. Wide Bay, New Britain, Bismarck Archipelago. Lectotype, SMF 5937. [= *R. rhynchotus* (Boettger)] (nat. size).
- Fig. 6-8: *Helix (Geotrochus) strabo* Brazier. Katau River [Binaturi River, near Daru, Papua]. Lectotype, here selected, AM C. 62381. [= *R. strabo* (Brazier)] (1.6X).
- Fig. 9-11: *Rhynchotrochus extraneus* Iredale. Kerema, Gulf of Papua. Holotype, AM C. 62657. [= *R. strabo* (Brazier)] (fig. 9, 1½X; figs. 10, 11, nat. size).
- Fig. 12: *Papuina jacunda* Fulton. German New Guinea. Holotype, BMNH 1902.5.28.39. [= *R. jacundus* (Fulton)] (2X).
- Fig. 13-14: *Rhynchotrochus jacundus* Fulton. Northeast New Guinea. MCZ 66376. (1.8X).

Fig. 15: *Helix millicentae* Cox. Louisiade Ids. Paratype, MCZ 191975. [= *R. louisiadensis* (Forbes)] (2X).

Fig. 16: *Helix millicentae* Cox. Louisiade Ids. Lectotype, AM C. 62380. [= *R. louisiadensis* (Forbes)] (2X).

PLATE 20

Fig. 1: *Rhynchotrochus taylorianus* (Adams and Reeve). Botanic Garden, Lae, Northeast New Guinea. MCZ 224942. (ex Australian Mus.) (1.8X).

Fig. 2: *Rhynchotrochus taylorianus* (Adams and Reeve). Milne Bay, Papua. MCZ 191228. (1.8X).

Fig. 3-4: *Rhynchotrochus taylorianus* (Adams and Reeve). Orokola, Gulf Division, Papua. MCZ 191971. (1.8X).

Fig. 5: *Rhynchotrochus taylorianus* (Adams and Reeve). Milne Bay, Papua. MCZ 191228 (1.8X).

Fig. 6-7: *Rhynchotrochus taylorianus* (Adams and Reeve). Ali Id., 18 miles East of Aitape, Northeast New Guinea. MCZ 192235 (1.8X).

Fig. 8-11: *Papuina wiegmanni parvula* (Rensch). French Id. [Unea Id.], Vitu Ids., Bismarck Archipelago. Paratypes, MCZ 248799. [= *R. wiegmanni* (v. Martens)] (1.7X).

PLATE 21

Fig. 1-2: *Rhynchotrochus strabo* (Brazier). Maclatchie Point, Gulf Division, Papua. ANSP 31550 and 31553. (2X).

Fig. 3: *Papuina tayloriana dampierensis* (Fulton). Dampier Id. [Northeast], New Guinea. Paratype, ANSP 127765. [= *R. strabo dampierensis* (Fulton)] (2X).

Fig. 4: *Rhynchotrochus strabo* (Brazier). Albert Mts., Gulf Division, Papua. MCZ 191348. (2X).

Fig. 5-6: *Rhynchotrochus kubaryi* (Milf.). Tawarin, near Hollandia, West New Guinea. MCZ 191233. (1.7X).

Fig. 7: *Rhynchotrochus kubaryi* (Milf.). Koeama River, east of New Pionierbivak, West New Guinea. MCZ 253178. (1.7X).

PLATE 22

Fig. 1-3: *Papuina williamsi* Clench and Archer. Omarakana, Central Kiriwina, Trobriand Ids., New Guinea. Fig. 1, Holotype, MCZ 110396; Fig. 2 and 3, Paratypes, MCZ 111149. [= *R. williamsi* Clench and Archer] (2X).

Fig. 4-6: *Papuina williamsi atalanta* Clench. Omarakana, Central Kiriwina, Trobriand Ids., New Guinea. Fig. 4, Holotype, MCZ 111151; Fig. 5 and 6, Paratypes, MCZ 111152. [= *R. williamsi* Clench and Archer] (2X).

Fig. 7-10: *Rhynchotrochus woodlarkianus* (Souv.). Woodlark Id., New Guinea. Fig. 7-8, MCZ 225345; Fig. 9-10, MCZ 225346.

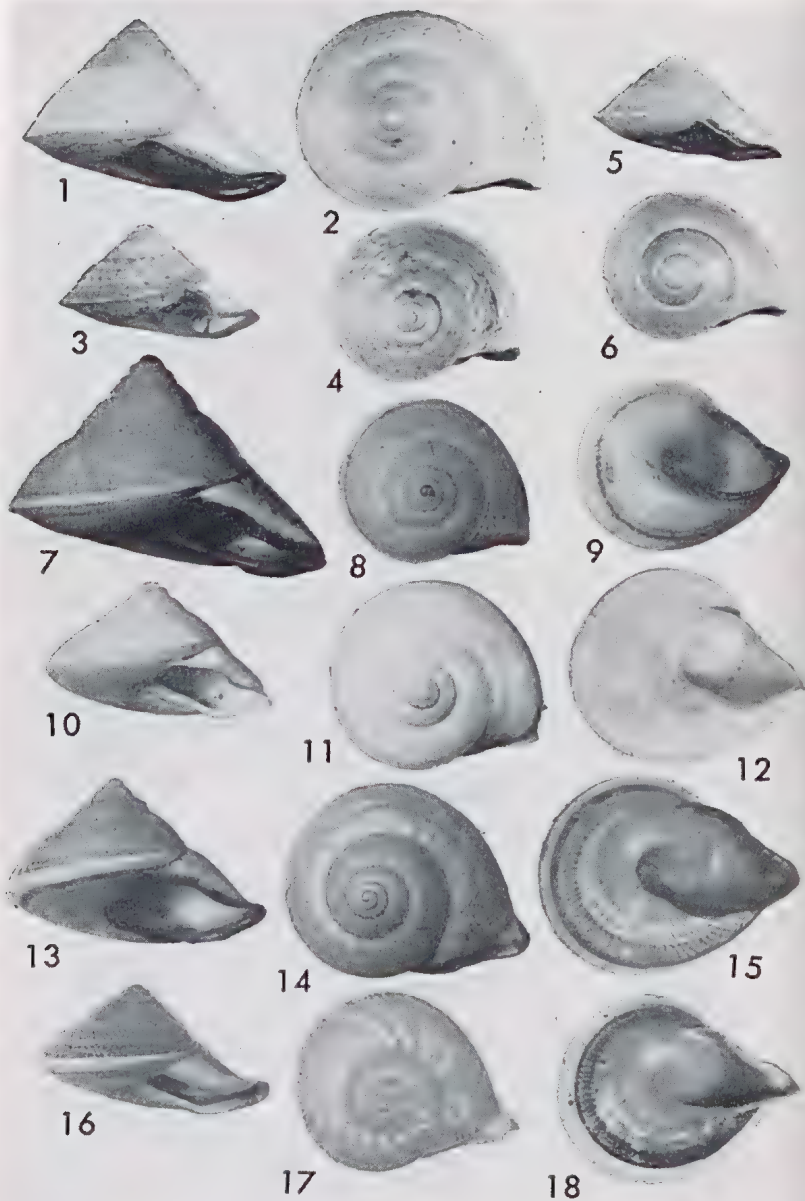


PLATE 15

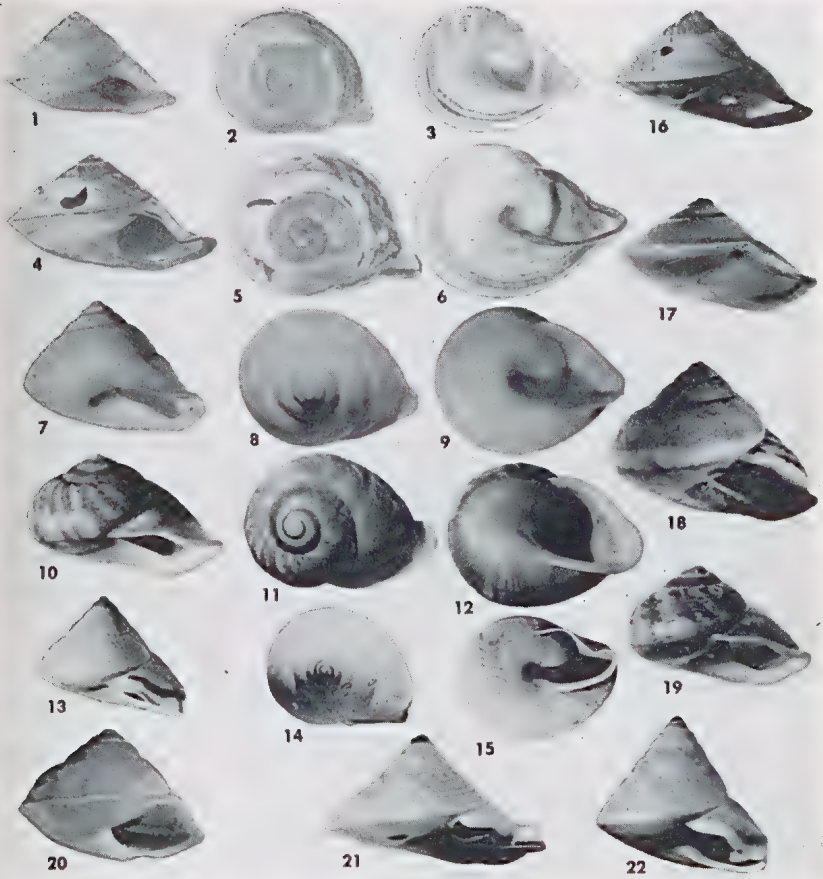


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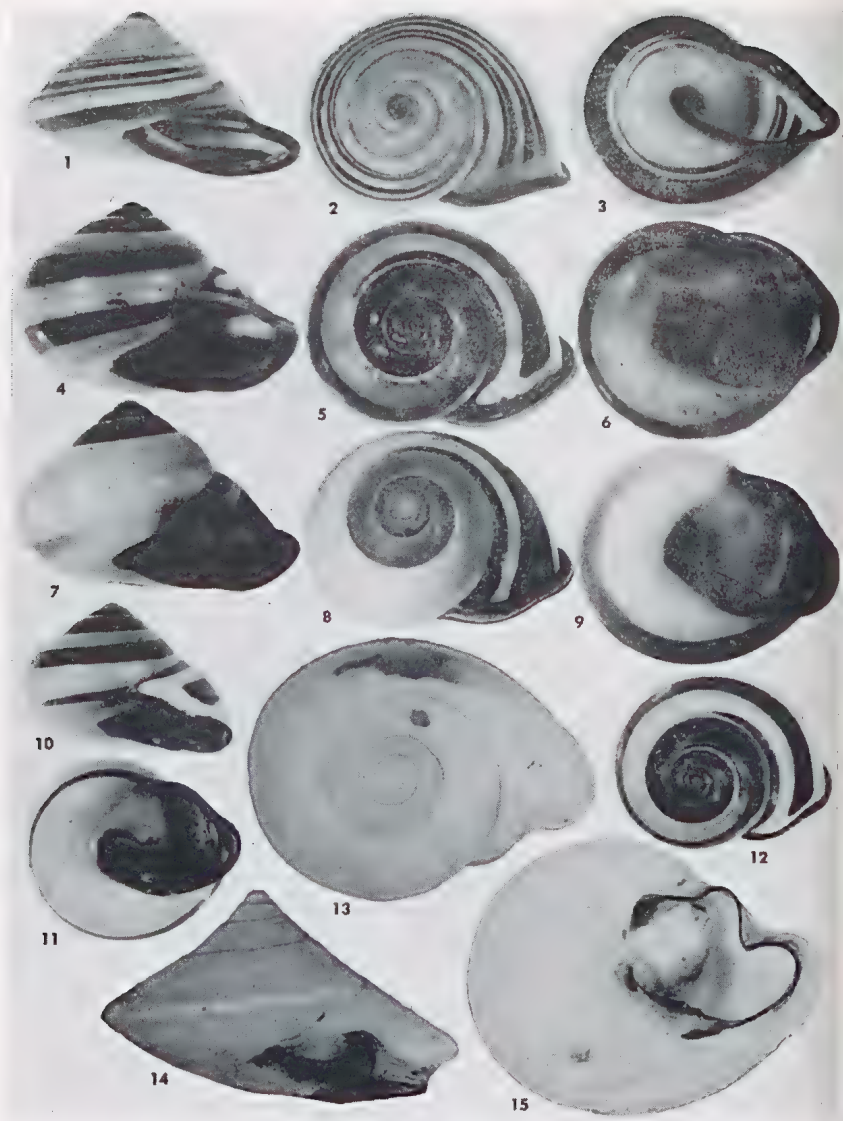


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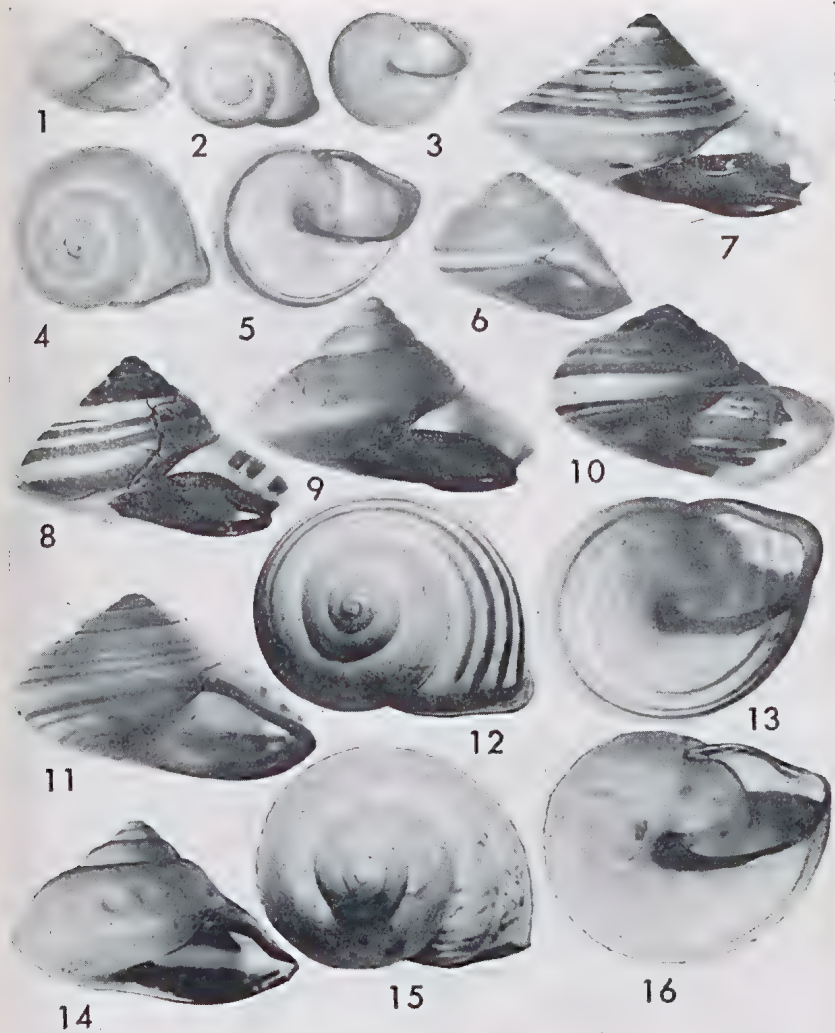


PLATE 18



PLATE 19



PLATE 20

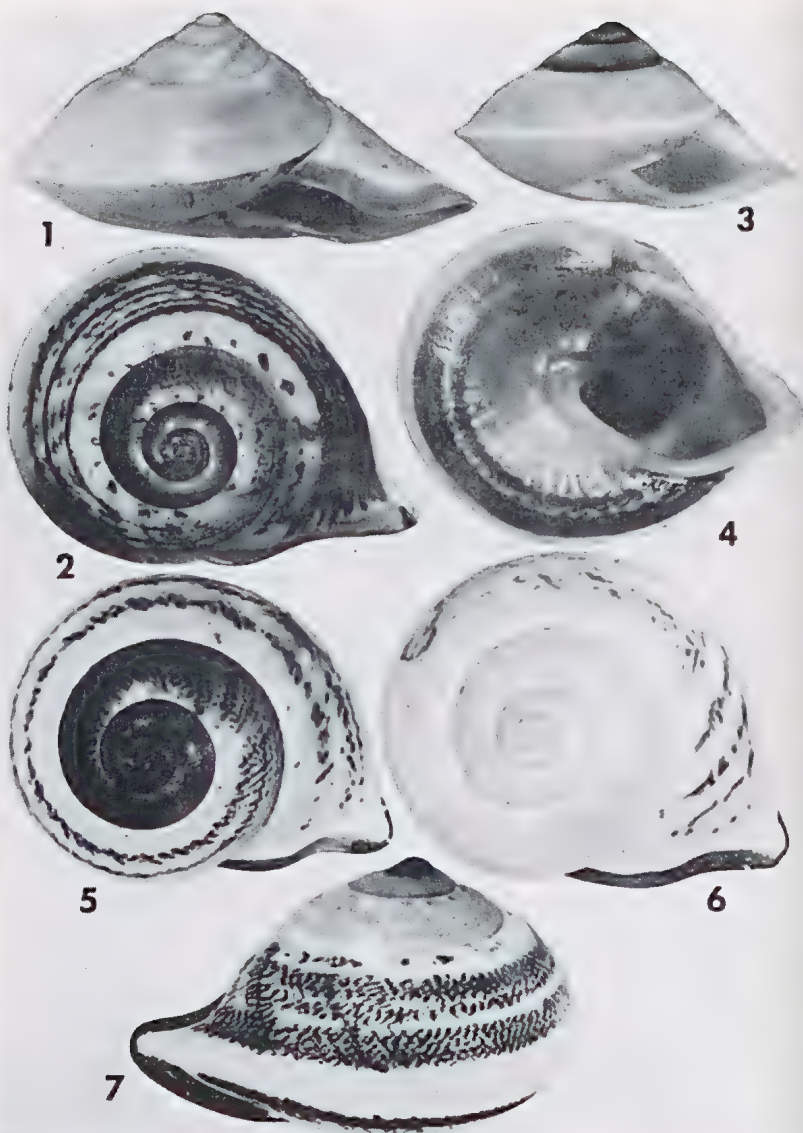


PLATE 21

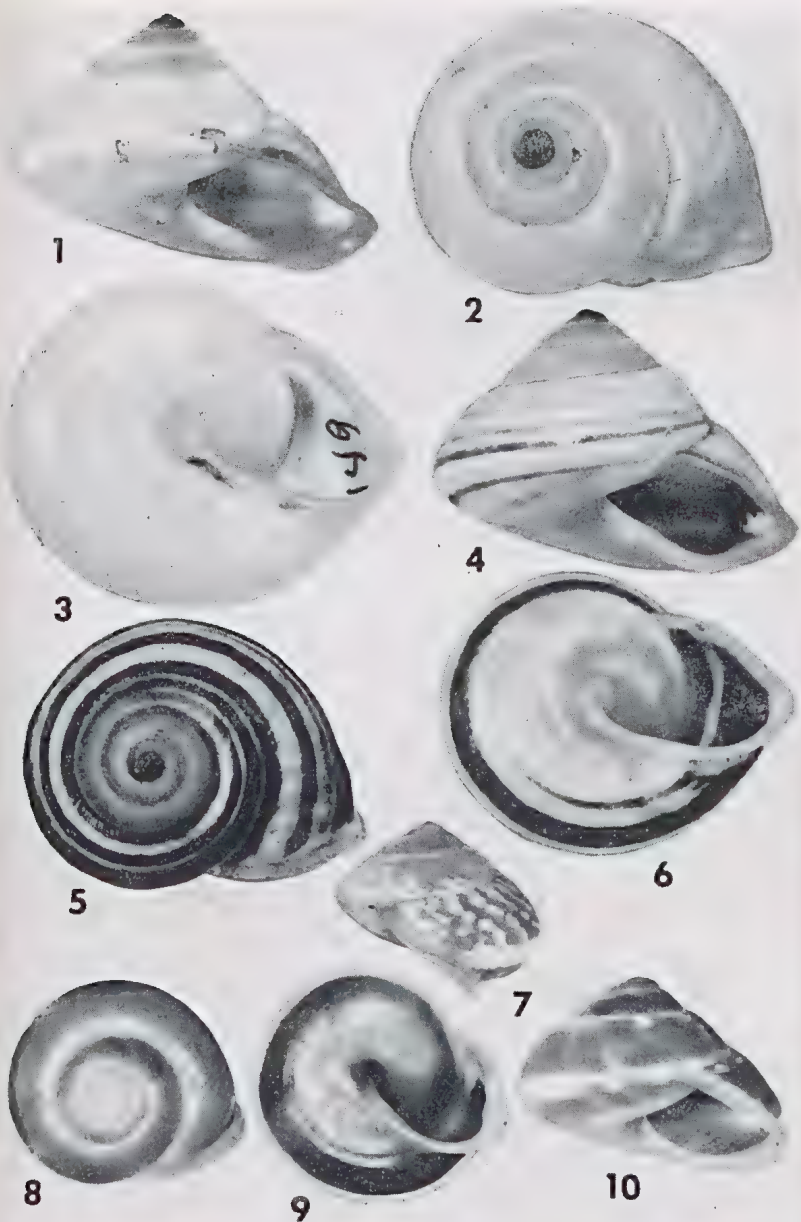


PLATE 22